specific point in time). Generation and transmission can also be classified as energy-related if their purpose is to create fuel diversity—for example, to reduce customer exposure to volatility in fuel prices or fuel availability. Meters are usually classified as customer-related, because it is the existence of a customer (rather than the quantity of demand or consumption) that drives the need for a meter.

3. ***Factor allocation*** allocates each category's costs to the various customer classes. Costs that are classified as demand-related (such as generation costs) might be allocated among customer classes based on each class's proportional contribution to the system's annual peak.[231]

317. While a cost-of-service study may be the starting point for allocating revenue responsibility, it is not necessarily the ending point. As Commission consultant Chernick explained:

> A commission need not approve, or even review, a cost-of-service study in any particular rate proceeding. Some regulators review COSSs in every rate case, others review a COSS once a decade. Some regulators select a particular COSS methodology to guide their decisions about rates; others consider several methodologies, without explicitly accepting any one method.[232]

A COSS thus is a guide, not a constraint:

> Even the best cost-of-service study reflects many judgments, assumptions and inputs; other reasonable judgments, assumptions and inputs would result in different cost allocations. In addition, concepts of equity extend beyond the cost-of-service study's assignment of responsibility for causing costs or using the services provided by those costs, to include relative ability to pay, gradualism in rate changes, and other policy considerations.[233]

318. The COSS prepared by PREPA's consultants[234] followed the traditional steps of functionalization, classification and allocation. They actually performed three separate

[231] Alternatives to allocating based on contribution to annual peak include allocating based on the average of a class's 12 monthly coincident peaks or allocating based on a class's non-coincident peak. A class's coincident peak is its contribution to demand at the point in time that coincides with the system peak. A class's non-coincident peak is the demand at the time of that class's peak demand, regardless of whether it coincides with the system peak.

[232] Chernick Report at 36.

[233] *Id.*

[234] PREPA's COSS appears in PREPA Ex. 8.0. Its authors, Mr. Zarumba and Mr. Granovsky, explain that their COSS "is used in the development of rates" that they propose in PREPA Ex. 4.0.

studies: one based on FY2017 on the assumption that the debt restructuring was completed, one based on FY2017 on the assumption that the debt restructuring was not completed, and one based on FY2014.

2. Critique of the COSS

319. Mr. Chernick found multiple problems with PREPA's COSS. A partial summary follows.

a. Problems with load data

320. The amount of generation, transmission and distribution capacity required to serve customers is determined in large part by the aggregate loads on each component of the system. As Mr. Chernick explained, depending on the system and the type of equipment, the loads that drive the need for new capacity may be a few hours a year, a few hours a month, the highest fifty or hundred hours in the year, the average load in several contiguous high-load hours, or total hourly load.[235] To determine how the loads of various customer classes contribute to the need for capacity, utilities typically conduct a load research program. The research develops load profiles for different customer groups.[236]

321. Because PREPA does not have a continuing load-research program, it had to develop load shapes through other means. Mr. Chernick found that PREPA's efforts had the following problems: (1) Data used to develop load shapes came from different years; (2) in certain customer classes, PREPA used the same load shape for both large and small customers, when their load shapes would likely differ; (3) some load shapes were "simulated" (PREPA's words) rather than actually observed; and (4) much of the information essential to reviewing the reasonableness of the load shapes was not available.[237]

b. Problems with demand allocators

322. PREPA did not have information with which to determine various customer classes' contribution to system peak load. PREPA therefore used allocators based on estimates of class non-coincident peak load. Those estimates reflected different peak hours, days and months for different tariff codes. Also, PREPA did not have non-coincident peak data for each customer class for any recent year, so it combined data on load shapes from as early as FY2009 and as late as FY 2014, depending on the tariff code.

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[235] Chernick Report at 39.

[236] A load profile for a customer class displays that class's load's shape—how the class's demand varies over the hours in a day, week, season or year. Load shape is crucial information because generation must be sufficient to meet load, whatever its shape, at all hours of the year.

[237] Chernick Report at 41-43.

323. Even if PREPA had reliable data on non-coincident peak load, there would still be major problems with using non-coincident peak load as an allocator. As Mr. Chernick explained:

> PREPA does not have one generation system for residential customers, another for street lights, another for secondary commercial customers, and so on. The vast majority of transmission lines serve a wide mix of classes. Most distribution substations and feeders also serve a mix of classes. In the real world, customers are mixed together, sharing distribution, transmission and generation resources. The loads that matter are at the times of high loads [on] each line, each transformer, and the generation system, not at the times of the maximum load of a class or tariff code.[238]

The result of these problems is, as Mr. Chernick explained, that PREPA's estimates of class demand allocators do not represent the load characteristics that drive PREPA's costs.[239]

c. Problems with functionalization and classification decisions

324. In the area of functionalization and classification, the COSS had at least five problems:

1. PREPA classified all fixed costs of generation as demand-related. This decision, Mr. Chernick explained, ignores the fact that PREPA incurred some generation costs not to meet demand but to diversify fuel sources, improve the efficiency of fuel use, or reduce emissions of pollutants. Such generation should have been classified to energy. Similarly, PREPA classified the fixed portion of its power purchase contracts to demand. But those contracts also served an energy function, because their costs were driven, at least in part, by a desire to diversify energy sources, access less expensive fuels, and use less fuel per kilowatt-hour generated.

2. PREPA functionalized all transmission to the transmission category, but some transmission lines should have been classified to generation, because they serve a generation function by connecting generators to the system's network. And transmission that is functionalized as generation then should be classified (as between demand and energy), consistently with how the associated generation was classified.

3. PREPA's sub-classification of distribution, between primary and secondary distribution, was not based on real data because the necessary data were not

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238 *Id.* at 44.

239 *Id.* at 28.

available centrally. The ratio PREPA used (59.5% for primary and 40.5% for secondary) was flawed because those numbers represented the fraction of load served at each voltage rather than cost of the equipment operating at each voltage.

4. PREPA allocated customer-related costs based on a weighted number of customers. The weightings were based on the relative cost of the different meters used by each tariff group. Mr. Chernick explained that there is no necessary relationship between the relative cost of meters and the ratio of the other customer-related costs that various tariff groups cause:

> [T]here is no reason to expect the variation in the average cost of a meter to be a good measure of the difference among classes in other average customer costs. For example, the variation in the average cost of a service drop among classes depends on a number of factors that have nothing to do with the cost of meters—the distance from the distribution line to the customer, underground versus overhead service, the number of customers sharing a service drop [...][240]

Furthermore, PREPA was not able to provide the derivation of the relative meter costs.

5. PREPA functionalized and classified overhead costs based on a single labor factor, even though many overhead costs are unrelated to labor. For example, insurance and finance are related to physical plant; the Energy Commission expense is related to customer payments for electricity whose prices are regulated by the Commission.

3. The Commission's use of the COSS

325. The Commission is fully committed to setting rates that are guided by a COSS in which we have confidence. But the gaps in data and the numerous subjective and debatable judgments in PREPA's COSS, leave us without confidence that the filed COSS describes cost causation accurately. For the Commission to express confidence in PREPA's COSS would imply it would accept a future COSS with the same flaws. That is not the signal the Commission wishes to send. Nor is it possible to "fix" PREPA's COSS in the short time the statutory deadline in this proceeding makes available. Rather, we will conduct a series of technical conferences, within a separate rate design proceeding, to sort through the problems and reach the right balance between perfection and irresponsibility.

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240 *Id.* at 58.

326. In the meantime, we must set rates, so that PREPA will have the revenues it needs to operate, the investment community will know that PREPA will be able to pay its bondholders, and so the public will have more certainty about its role in PREPA's transformation. And so we must set rates, even in light of the insufficiency of PREPA's COSS.

327. However, we cannot and do not ignore PREPA's COSS. The document is in the record, was presented by professional witnesses, was closely analyzed by Mr. Chernick and intervenors and was vetted through two days of detailed questioning by the Commission. Under these circumstances, we view PREPA's COSS as a guide against which we can test other options.

328. Some may view our candor about the COSS as a defect, and any deviation from perfection as evidence of unlawfulness. But we remind all that this Commission must operate in the real world. The facts are what they are. PREPA is in a transition. One aspect of that transition is that PREPA does not have, or, if it has, it has not produced during this brief 180-day proceeding, all the information necessary to produce a fully trustworthy COSS. The Commission cannot change that fact, any more that it cannot change the fact that PREPA's current rates are insufficient. The reality of transition means that we must view today's rate decision as itself transitional. As PREPA gathers more data and improves its cost causation analyses, we will have a COSS that more surely guides our rate decisions. Until then we must work with what we have.

329. The alternative would be to view the flawed COSS as a constraint on our rate decision. So constrained, we would have to set rates that were admittedly wrong, then correct them later—a practice that would confuse customers, inject unpredictability and reduce confidence in our decisions. The far better decision is the one Mr. Chernick recommends, and the one everyone can understand, as discussed next.

C. The Revenue allocation results

330. A disciplined, credible cost-of-service study should be an input to revenue allocation, but it is only one consideration. Commissions typically vary from the COSS based on such considerations as gradualism, inter-class equity and concerns about retaining major loads. Indeed, PREPA's proposed revenue allocation itself deviates markedly from its COSS. As presented in PREPA's Exhibit 4.0, the percent increase in base rates for each revenue class called for by PREPA's COSS for most classes differs from the percent increase proposed by PREPA for the same class.[241] The numbers are re-displayed here:

Class	COSS	Proposal
All classes	26.5%	26.5%
Residential	60.4%	28.6%

[241] PREPA's Ex. 4.0 at 26.

Commercial	6.1%	22.1%
Industrial	1.4%	26.2%
Agriculture	92.9%	22.2%
Public lighting	76.5%	76.5%

331. Given the flaws in PREPA's COSS, the Commission needed another basis for allocating revenue responsibility. Mr. Chernick, with forty years' experience in this field, explained that under such circumstances commissions might allocate responsibility for revenue increases using (a) an equal cents/kWh allocator (as the Commission did for the Transition Charge and for the Provisional Rate) or (b) an equal percentage increase for all classes.[242]

332. The Commission adopts Mr. Chernick's recommendation of allocating revenue increase on an equal cent-per-kWh basis with one exception. This approach, besides being straightforward, encourages conservation, and maintains current incentives to invest in renewable energy.

333. Exception: Prior to computing the general cent-per-kWh increase, PREPA shall increase the PPBB revenue requirement by the average increase in the system revenue requirement, excluding the fuel, purchased-power and Transition Charge. This separate treatment ensures that the entities covered by this tariff, AES and EcoEléctrica, pay an appropriate amount. The tariff is for back-up service to these two large fossil power producers. As presently written, it recovers most of its revenue through demand charges, not through per-kWh charges. If we allocate the entire revenue increase to per-kWh charges these two customers avoid nearly the entire increase. Therefore, this tariff class's appropriate share of the revenue increase will be added to the existing charge for back-up service.

334. The remainder of the allowed revenue increase (*i.e.*, the portion not recovered through the PPBB revenue requirement), shall be divided by projected non-PPBB FY2017 sales to yield a general cent-per-kWh revenue increase rate. The revenue allocation for each tariff shall be increased by the revenue increase rate times the projected sales for that tariff.

Directive

1. ***PREPA shall allocate the allowed revenue increase in an equal cent-per-kWh basis with one exception, as discussed below.***

2. ***Prior to computing the general cent-per-kWh increase referenced above, PREPA shall increase the PPBB revenue requirement by the average increase in the system revenue requirement, excluding the fuel, purchased-power and Transition Charge.***

[242] Chernick Report at 68.

3. ***The remainder of the allowed revenue increase shall be divided by projected non-PPBB FY2017 sales to yield a general cent-per-kWh revenue increase rate.***

4. ***The revenue allocation for each tariff shall be increased by the revenue increase rate times the projected sales for that tariff.***

II. Rate Design

335. Having allocated revenue (and the revenue increase) to each class, the Commission must determine how that revenue will be collected from the customers in each class. That is the purpose of rate design. In this section, we address the rate design issues that were disputed among the participants or where criticisms were offered by our consultants. Before addressing individual rate design issues, we discuss the role in rate design played by marginal cost.

A. The role of marginal cost

336. Rate design is built on specific components. The most common components are the hourly energy charge (in cents/kWh) and the monthly customer charge (in fixed dollars). Some rate designs for large customers also have monthly demand charges (in $/kW). Rate designs assign revenue responsibility to individual customers using "billing determinants." Billing determinants are the denominators in the fractions that produce rates (the numerator being the dollars that need to be recovered). Typical billing determinants track the components just mentioned: kWhs (for the portion of the rate structure that assigns revenue responsibility based on consumption), customer months (for the fixed customer charge portion of the rate structure) and monthly maximum demand in kWs (for demand charges).

337. In choosing among these options, regulators seek to ensure fairness among customers within each tariff class, while provide understandable, stable, and efficient price signals. The focus on efficiency leads to an emphasis on marginal cost.

338. Marginal cost is the increase in a company's total cost caused by making one more unit, whether that unit is one more kWh of energy, one more kW of capacity, or one more customer served. A principle of microeconomics is that prices based on marginal cost are more economically efficient than prices that are not. That is, the closer a price is to marginal cost, the more efficient will be a producer's decision to produce and a consumer's decision to consume. The more efficient those production and consumption decisions are, the more resources are available to the economy (and thus the citizenry) as a whole.

339. Due to the importance of marginal costs, utilities typically perform marginal cost studies. As Mr. Chernick explained, these studies estimate the specific marginal costs that are relevant to ratemaking, such as the cost of:[243]

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[243] *Id.* at 70-71.

1. serving one more customer, for each of the various types of customers served;

2. generating or purchasing one more kWh of energy at various times of the day, plus the line losses associated with delivering that energy to the customer;

3. providing enough generating capacity to serve another unit of customer load (*e.g.*, a kilowatt at the coincident peak hour(s)) plus the line losses associated with serving that load in that hour;

4. providing enough transmission capacity to serve another kilowatt of the customer loads driving transmission requirements;

5. providing enough primary distribution capacity to serve another kilowatt of the customer loads driving primary distribution requirements; and

6. providing enough secondary distribution capacity to serve another kilowatt of the customer loads driving secondary distribution requirements.

340. PREPA Exhibit 9.0 is PREPA's marginal cost study. PREPA used the results to guide its proposed rate structures, in the following areas relevant to this Order: setting energy rates[244], setting customer charges[245], justifying its proposed load-retention rider[246], and estimating whether net-metered customers are "subsidized."[247]

341. After analyzing PREPA's marginal cost study, Mr. Chernick identified serious deficiencies, including:[248]

1. dramatically under-estimating fuel prices, and hence marginal energy costs;

2. ignoring the costs of renewable resources required to meet the renewable portfolio standard;

3. assuming that no load-related generation investments are avoidable for 20 years (thus discounting PREPA's proposals to add hundreds of megawatts of capacity starting in 2020);

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[244] PREPA Ex. 4.0 at 34, 41.

[245] PREPA Ex. 15.0 at 67.

[246] PREPA Ex. 4.0 at 36.

[247] *Id.* at 34-35.

[248] Chernick Report at 71-72.

4. assuming that no transmission investments are avoidable for more than 20 years (thus discounting PREPA's plans to add large amounts of load-related transmission in the next three years);

5. excluding large amounts of load-related distribution investments;

6. assuming that additional distribution plant will not increase operations and maintenance cost; and

7. failing to distinguish between average and marginal losses.

342. At the Technical Hearing we had a useful dialogue on these points and others. The Commission recognizes that PREPA's consultants hold opinions that differ from Mr. Chernick's. Most of these differences we can address in the upcoming rate design proceeding. The ones that affect specific rates at issue in this case we discuss next, in the following categories: residential rates, commercial and industrial rates, lighting and unmetered rates, connection fees, and unbundling.

B. Residential rates

1. Customer charge

343. The customer charge is imposed on every customer every month, regardless of the quantity of consumption. Its purpose is to recover the fixed costs that are necessary to connect and maintain that customer. Mr. Chernick advised that:

> [T]he fixed charge should reflect the cost of having that household (in the case of the residential class) as a customer, even if the customer used zero energy. [...] The fixed charge should approximate the cost of adding a customer without adding load, or the savings when a customer notifies PREPA that service is no longer required. [...] The fixed customer charge should reflect the minimum costs of serving the smallest customers in the class.[249]

The costs recovered through a customer charge typically include the service drop, meter, meter maintenance, meter reading, billing, and customer service.

344. PREPA proposes to raise the fixed charge for the GRS (general residential service) class from the current \$3/month to \$8/month, while leaving the RH3 and LRS customer (low-income customer) charges at \$2/month.[250] PREPA's consultants testified that

[249] Chernick Report at 101.

[250] The RFR charges for fixed blocks of energy (based on number of rooms in dwelling) are set by Act 69-2009, as amended by Act 22-2016.

their marginal cost study showed that the full fixed costs of serving a customer who uses no energy is $14.18/month for single-phase customers (a category that includes most residential customers and all small customers). The $14.18/month amount comprises carrying charges of $4.60 for the meter, $2.94 for the service drop, and $5.25 for a share of a transformer, plus $1.38 for meter reading and billing.[251]

345. Mr. Chernick found this amount to be overstated, for at least three reasons:[252]

1. PREPA used a nominal carrying charge of 17.06%, rather than a real carrying charge of 15.26%. Since PREPA will be escalating this estimate over time, the real carrying charge is appropriate here. Correcting that error, holding all else the same, reduces the marginal customer charge to $12.83/month.

2. PREPA included in the charge a $370 transformer. Transformer costs are driven by the size and number of transformers, both of which are determined largely by the area and load to be served, rather than the number of customers. Adding a customer without adding load will not normally require a new transformer. Indeed, PREPA's cost-of-service study treats transformers as entirely load-related rather than customer-related; the marginal cost study should do the same. Correcting this error, all else the same, reduces the customer cost to $8.13/month at the real rate.

3. PREPA included in the charge a $207 service drop. Small customers in apartment buildings will usually share a service drop. Assuming that an average of just five small residential customers share a larger service drop sized for general-service customers would reduce the marginal customer cost to $6.69/month to $6.13/month at the real rate.

346. Mr. Chernick then performed a recalculation showing that the incremental cost to connect, bill, and service a new small customer would be about $6/month. But he also calculated that the marginal cost of maintaining an existing customer location might be only $2 or $3. He recommended a customer charge of $4 per month.[253]

Directive

The fixed charge for non-subsidized GRS customers shall be raised to $4.00, which is consistent with Mr. Chernick's recommendations. No other fixed charge shall be changed. The remainder of the revenue allocated to the GRS customers will

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[251] PREPA Ex. 15.0 at 6.

[252] Chernick Report at 101-03.

[253] *Id.* at 103.

therefore be recovered through the consumption (per kWh) charge. By making the decision to consume electricity more expensive, this approach will encourage more energy conservation and more renewable energy.

347. In finding that a $4.00 customer charge is justified by marginal cost considerations (as evidenced by Mr. Chernick's analysis), we have considered PREPA's consultants' concern that placing costs on the kWh charge rather than on the fixed customer charge will leave PREPA at risk of not recovering its fixed costs. PREPA has provided no evidence about the magnitude of this risk. The Commission must make decisions based on evidence, not fears. However, the Commission will examine this question closely in the upcoming proceeding on rate design. Furthermore, PREPA can bring forward evidence of revenue loss in the reconciliation process described in Part Four below.

2. Energy charge

348. Energy charges are usage charges, imposed per kilowatt-hour of consumption. Currently, PREPA charges GRS customers 4.35 cents/kWh for the first 425 kWh of monthly consumption and 4.97 cents/kWh for additional usage. This type of differential, known as "inclining block" rates, is common in other jurisdictions. It is used by commissions to reduce costs for small users and to encourage energy conservation.

349. PREPA proposes to remove that differential. Its consultants argued that the energy charge for each block exceeds the bundled marginal cost.[254] Mr. Chernick responded that the PREPA marginal energy cost study was flawed, as discussed above. Among other concerns he raised, PREPA's study had estimates of marginal energy costs that were lower than PREPA's self-reported FY2016 production costs. The PREPA estimates also reflected fuel costs much lower than those estimated by Drs. Fisher and Horowitz. Moreover, PREPA's estimates also did not account for the fact that certain plants would be operating all month; with the boiler already hot, the incremental fuel costs necessary to raise those plants' production would be lower than normal. Finally, PREPA used a simple average of the hourly marginal costs, rather than a weighted average of hourly prices reflecting the higher marginal costs in higher-load hours. Mr. Chernick also pointed out that the GRS customers using over 425 kWh monthly have a lower load factor (fewer kWh per kW of NCP peak) than the smaller GRS customers, and therefore may be more expensive to serve per kWh. He added that eliminating the inclining-block rate would "slightly reduce conservation incentives for the larger customers, who probably have more opportunities for conservation."[255]

Directive

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[254] PREPA Ex. 4 at 41.

[255] Chernick Report at 72.

The Commission accepts Mr. Chernick's reasoning and his conclusion. PREPA shall maintain the existing cents/kWh differential in the GRS inclining block rate.

3. Fuel discount

350. The Legislature has mandated a fuel discount. The discount rises with the price of oil, up to $30/barrel. The discount is applied to the first 400 kWh monthly usage of eligible residential customers.[256] PREPA has applied this discount to customers in the LRS and RH3 tariffs and the GRS 111 tariff code (which covers the handicapped, the elderly and college students). PREPA currently uses a complicated formula that gives higher discounts per kWh to the smallest customers. PREPA also uses a complicated declining discount, starting at 90% for the smallest customers, which then drops steeply at 101, 201 and 301 kWh/month. The entire discount abruptly disappears at 426 kWh/month, as explained in the Chernick Report at Figure 7 (at 104-105).

351. In this proceeding, PREPA proposes to simplify the discount in various ways. The Commission agrees with the need to simplify.

Directive

PREPA shall restructure the fuel discount for customers on the LRS, RH3 and GRS 111 tariffs, simplified as proposed in PREPA's filing, but modified so that the discount diminishes gradually over 425 kWh, rather than abruptly. The fuel discount shall be phased out from 425 kWh to 500 kWh.

4. Direct debit credit

352. PREPA provides a 10% discount from base rate (*i.e.*, excluding fuel and purchased power), for residential customers who pay their bills by direct debit. PREPA has not provided data on the rationale for the level of the discount or the savings that result. At the technical hearing we learned that the number of customers using this payment method is small.[257]

353. PREPA says that direct-debit billing increases the probability that PREPA receives its funds on time and in full—if there are sufficient funds in the billed account. PREPA also sees benefits in reduced processing costs, and improved cash flow due to increased predictability.

[256] See Puerto Rico Electric Power Authority Act sec. 22(c), as amended by Act 133-2016.

[257] CEPR-PC-04-27 at 13. Commission's Sixth Request of Information (July 29, 2016).

354. Mr. Chernick pointed out that whatever the benefits to PREPA of prompt, reliable and efficient payment, those benefits would be the same for all components of the bill, not just the base charge. Since the direct debit credit has been about 2% of the total bill, he recommended resetting the credit to that level but applying it to the entire bill. That level, he said was consistent with discounts offered by other utilities.[258]

Directives

1. ***The direct-debit discount shall remain as currently established, i.e., as a 10% discount on base rates, excluding all riders.***

2. ***In the rate design proceeding, PREPA shall present a business case that describes the benefits and costs of this discount.***

3. ***PREPA shall add the description of the direct debit discount to its tariff book.***

C. Commercial and industrial rates

1. Demand charge

355. A demand charge applies a rate in $/kW to a customer's maximum rate of consumption in any 15-minute period in the month, regardless of whether the customer's maximum load coincides with period of high load on the system. PREPA proposes major increases in the demand charges for the non-residential classes that current have those charges (tariffs GSP, GST, TOU-P, TOU-T and LIS). The proposed increases are more than twice the increases in the energy charges, and for GSP, over twelve times.[259]

356. Mr. Chernick disagreed with this proposal. Here are three reasons he gave, among others, for why demand charges, as tools for taming customer demand and reducing system costs, are ineffective:

1. "Even a single [customer] failure to control load results in the same demand charge as if the same demand had been reached in every day or every hour. This attribute of demand charges erodes the incentive to even try to avoid the charge, since weeks of careful effort can be swept away if the electric water and refrigerator happen to go on simultaneously. Once a customer is aware of having hit a high billing demand for the month, the demand charge offers no

[258] Chernick Report at 105-06.

[259] See, *e.g.*, PREPA Ex. 4.0 at 48.

reward for controlling load any time that the customers load is less that that prior demand."[260]

CEMEX's testimony (at 8-9) noted that demand charges penalize arbitrarily when operating sporadically due to low demand for cement—even if the cement plant operates at nearly 100% capacity factor for the days it is used.

2. Customers reach their maximum monthly loads at a wide variety of times during the month, while capacity costs for the system as a whole are driven by coincident loads that occur at the time of maximum system demand on the relevant piece of equipment. So penalizing an individual customer for its non-coincident demand does not help avoid system costs.[261]

3. Customers can avoid demand charges merely by redistributing load. And if a customer shifts its load from its own peak to the system peak for a particular piece of equipment, the result is to increase system costs.[262]

357. Intervenor witnesses asserted that demand charges reduce customer incentive to install distributed generation.[263]

358. PREPA also proposed to eliminate certain ratchets and contract demands.[264] Mr. Chernick agreed with that result because (among other reasons) ratchets make it more difficult for customers to control their bills, while diluting incentives to reduce usage in ways that would reduce PREPA's costs.[265]

Directives

1. PREPA shall not increase demand charges for any tariff other than PPBB (as described herein). The revenue increases assigned in this proceeding to

[260] Chernick Report at 97.

[261] *Id.* at 97-98.

[262] *Id.* at 98.

[263] See, *e.g.*, Previdi Direct at 9, 15-16; Kunkel and Sanzillo Direct at 3, 32-33; Gonzalez Direct at 8; Masses y Artze Direct at 9.

[264] CEPR-PC-04-31. Commission's Sixth Request of Information (July 29, 2016). The ratchet took the form of determining billing demand each month as the highest of (a) the current month's maximum 15-minute demand, (b) 60% of the customers maximum demand in the preceding year, and (c) 60% of a previously established contract demand level. The effect is a ratchet because one year's demand creates a floor for the charge in the next year; *i.e.*, billing demand cannot ever decline.

[265] Chernick Report at 107.

the other tariffs with demand charges shall be recovered through PREPA's proposed customer charges and through increases in the per-kWh rates.

2. ***PREPA shall increase each component of the PPBB tariff by an equal percentage, computed to recover the revenue increase allocated to this class consistent with the Commission's determination above.***

3. ***PREPA shall eliminate the ratchets and contract demands. They are unnecessarily complex and lacking in cost justification. With these changes, the demand-charge portion of the customer's bill shall be determined solely by the current month's 15-minute maximum demand.***

2. Time-of-use rates

359. PREPA has two tariffs for non-residential time-of-use rates: time-of-use primary (TOU-P) and time-of-use transmission (TOU-T). For the customers using these tariffs, PREPA proposes to (a) allocate most of the rate increase to the demand charges, (b) eliminate the distinctions between on-peak and off-peak demands, (c) slightly reduce the energy charges, and (d) close the rates to new customers. For the two customers currently on the TOU-T rate with standby service (SBS), PREPA proposes to terminate their TOU rates and move them onto the non-TOU GST tariff.

360. Mr. Chernick advised against these changes. CEMEX also expressed concern, recounting its efforts to switch to a time-of-use rate, which efforts met with PREPA's rejection. We agree with CEMEX's argument that keeping the TOU rates open will assist in helping customers to manage their demand and consumption in a way that lends more stability to PREPA's revenues, while supporting the competitiveness and economic development of industrial consumers.

Directive

This labor-intensive, deadline-driven rate case is a suboptimal time to make major changes in rate design, especially where the effects of those changes on various customers is not well-understood. PREPA shall retain Tariffs TOU-P and TOU-T without change in availability, and keep them open for new customers. PREPA shall eliminate the ratchets and contract charges from these tariffs, and increase the on- and off-peak energy charges in each tariff uniformly to recover the allocated revenue increase. We will address the issue of time-of-use rates in the upcoming rate design proceeding.

3. Economic development rate

361. PREPA proposes to offer price discounts, subject to Commission review, through an economic development rider. The order would allow PREPA to provide a negotiated discount for a period of three to five years in exchange for the customer creating new jobs on

the Island. The discount level would be based on the level of employment created and the cost to serve the load.

Directive

> ***PREPA shall not initiate the economic development rate. The Commission does not currently have expertise in job development. The proposal does not address, among other things, the types of jobs or their longevity. Nor does the proposal address the Commission's ability to enforce the job creation requirement against a customer that fails to achieve that requirement. This Commission cares deeply about economic development, and will do all it can within its authority to stimulate it. But decisions of this importance to Puerto Rico's future must be supported by more than vaguely defined riders. We will discuss this option more deeply in the upcoming rate design proceeding.***

4. Load-retention discounts

362. PREPA proposes a load-retention rider. The rider would be available for situations in which a discount is necessary to retain load that would otherwise be lost, provided the discounted rate generated revenues exceeding the incremental cost of serving the load. Such discounts can protect other customers from having to bear the fixed costs that would be left behind should the customer at issue cease to be a customer of PREPA. The discount would not be tied to job creation. Any discount negotiated by PREPA would be subject to Commission approval.

363. Mr. Chernick cautioned that the Commission should establish some guidelines to define the availability of load-retention discounts, so that they do not subsidize large customers at the expense of others, promote inefficient consumption, or deter the economic development of renewable energy.[266] He also stressed that PREPA's estimates of marginal costs, which he asserts are understated, need to be improved before the Commission can have confidence that increased sales due to any discount will benefit other customers.[267]

Directives

1. ***PREPA shall institute a tariff offering load-retention discounts where necessary to retain load. The discounts shall be subject to Commission advance review, not produce rates below marginal cost, shall be no greater than necessary, shall not encourage wasteful consumption, and shall not pose an obstacle to the development of economical renewable energy.***

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[266] *Id.* at 109-10.

[267] *Id.* at 110.

2. ***Negotiations between PREPA and customers seeking this discount shall (a) be guided by the foregoing principles and any others the Commission establishes, and (b) include representatives of ICPO to the extent ICPO wishes to participate. This requirement is not intended to exclude others.***

5. The PRASA preferential rate

364. The Commission rejects PRASA's proposal. Act 50-2013 established a preferential rate under which PREPA would bill for all electric services provided to PRASA. For fiscal year 2017 forward, Act 50-2013 established a rate of 16 c/kWh. On March 28, 2014 PREPA and PRASA signed an agreement implementing the preferential rate, as well as other relevant terms and conditions. Section 9 of Act 50-2013 authorized PREPA to terminate the preferential rate if honoring such rate affected its ability to meet its financial obligations.[268]

365. On December 29, 2015, PREPA notified PRASA its intention of terminating the preferential rate. The preferential rate was effectively terminated on July 1, 2016.

366. PRASA argues that Act 50-2013 requires the Commission to approve a preferential rate.[269] PRASA's argument is based on the fact that Act 50-2013 requires PREPA to approve a rate and, through Act 57-2014, the responsibility of approving rates was transferred to the Commission, and such transfer of powers included the obligation to implement a preferential rate for PRASA.

367. We hold that Act 50-2013 does not bind the Commission nor does it impose an obligation to adopt a preferential rate for two reasons. Firstly, Section 6.25(b) of Act 57-2014 provides that all of PREPA's rates would remain in effect until they are reviewed by the Commission. We interpret this sentence to mean that any prior arrangement with regards to PREPA's rates is subject to the Commission's review, and the Commission has the power and authority to review and approve, disapprove or modify all of PREPA's rates. Nothing in Act 57-2014 exempts PRASA's preferential rate from this authority nor does it suggest that the Commission's general discretion to approve rates is limited by Act 50-2013.

368. Secondly, PRASA argues that, since PREPA unlawfully terminated the preferential rate agreement, the Commission should interpret that such rate continues to be in effect.[270] However, during legal arguments, PRASA's attorney stated that no court or administrative forum with competent jurisdiction had issued a ruling confirming PRASA's argument and deeming the preferential rate agreement to be in full force and effect.[271] As

[268] Section 12 of the PREPA-PRASA agreement provides similar language.

[269] *See* PRASA's Legal Brief at 5.

[270] *Id.* at 3.

[271] *See* Technical Hearing Panel I Part 1 Recording, 17:30.

such, the legal reality before the Commission is that the preferential rate agreement is no longer in effect, and has been terminated since July 1, 2016. The Commission cannot presume, nor it is reasonable to do so, that the preferential rate agreement was unlawfully terminated. Such a controversy is not before this Commission's consideration. Accordingly, the Commission concludes that, as of the date of this Order, the preferential rate is not in effect.[272]

D. Lighting and unmetered rates

369. PREPA has proposed a large percentage rate increase for the Public Lighting and most unmetered tariff codes.[273] Its consultants acknowledge that increasing the rates for the Public Lighting tariff will increase the magnitude of the subsidy charge. On the other hand, they say, mitigating the increase to Public Lighting would require larger increases to other customer classes.[274]

Directive

PREPA shall increase each component of the puhlic lighting and unmetered tariffs by an equal percentage, computed to recover the revenue increase allocated to this class consistent with the Commission's determination above. We will revisit these issues in the rate-design proceeding.

E. Reconnection fees

370. Currently, secondary-voltage customers (480V and below) pay $25 to reconnect service. PREPA says its reconnection cost is $52. High-voltage customers (>480V) pay $100 for a reconnection, while according to PREPA, reconnection costs approximately $500.

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[272] Similarly, during the Technical Hearings, PRASA's witness, Ms. Ramírez stated that PRASA's request was for the Commission to adopt some kind of rate treatment which would provide stability and predictability to PRASA's energy costs. Upon questions from the Commission's Staff, Ms. Ramírez stated that a fixed rate higher than 16 ¢/kWh which would be adjusted on a yearly basis would be acceptable to PRASA. Act 50-2013 provides for a fixed rate of 16 ¢/kWh and does not contemplate any adjustments to such rate on a periodical basis. We interpret this to mean that PRASA's request to this Commission is outside of the scope of Act 50-2013 and would even contradict some of the provisions of Act 50-2013. We view this as consistent with our conclusion that Act 50-2013 does not limit the Commission's discretion is approving rates applicable to PRASA.

[273] PREPA's consultants stated that Tariff USSL is PREPA's tariff for unmetered services (PREPA Ex. 4.0 at 57). But the USSL tariff serves less than 1% of PREPAs unmetered load.

[274] CEPR-PC-11-02(b) at 2. Commission's Thirteenth Request of Information (September 23, 2016).

PREPA proposed to raise the charge above cost to include a penalty feature, but then withdrew that proposal.[275]

Directive

PREPA shall raise each reconnection charge to its cost level: $50 for secondary customers and $500 for primary customers, adjusting its revenue requirement accordingly. This change aligns the charge with PREPA's estimates of actual cost. Any future changes in fee schedules require Commission approval.

F. Unbundling

371. PREPA's consultants proposed to "unbundle" rates, by separating PREPA's costs into generation, transmission and distribution. They claimed that "unbundling of tariffs is necessary in order to properly price the subcomponents of electric service used by each customer and avoid cross-subsidization."[276]

372. As we have stated regarding other PREPA proposals, this short, intensive rate proceeding is not an optimal time to consider this type of proposal. Furthermore, simply disaggregating generation, transmission and distribution does not provide customers with information truly relevant to their decisions. The consultants' "unbundling" proposal ignores the elementary distinction between cost unbundling (separate statement of costs) and service unbundling (allowing customers to purchase certain services without purchasing others, as in buying coffee without the coffee cup). In addition, the information relevant to both cost unbundling and service unbundling is not merely generation vs. transmission vs. distribution, but avoidable vs. unavoidable costs, sunk costs vs. future costs, and strandable costs vs. non-strandable costs. Therefore, the proposed "unbundled" rates are rejected.

373. The consultants' bid to unbundle is not an essential part of a rate case whose chief purpose, in the short time available, is to determine the revenues PREPA needs to operate. Developing and submitting this proposal was not a good use of PREPA's resources, which are ultimately paid for by the ratepayers. When the Commission determines the time is right to discuss unbundling, it will initiate an inquiry and determine what information PREPA must provide. Until then, PREPA should avoid treating its customers like a bank account from which it draws money each time its consultants wish to advance ideas. It is better to ask the Commission first whether such spending is worth the customers' money.

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[275] CEPR-RS-01-14 at 7. Commission's Fourth Request of Information (July 15, 2016).

[276] PREPA Ex. 4 at 28.

III. Riders

374. For some components of the revenue requirement, regulators may use riders to recover the costs separately from all other costs. PREPA proposes special riders for fuel, purchased power, CILT and a group of costs and discounts collectively referred to as "subsidies."[277] The Commission also has required PREPA to create a rider for energy efficiency expenditures, although we have not approved dollars for that rider. These matters are discussed next.

A. Fuel and purchased power

375. Currently, PREPA recovers all of its fuel costs and purchased-power costs through separate but similar Fuel Cost Adjustment ("FCA") and Purchased-Power Cost Adjustment ("PPCA") cost riders. It sets and reconciles the riders on a monthly basis.[278] Most other costs are recovered through base rates. CILT and subsidies were recovered through the FCA and PPCA by means of a "gross-up" produced by dividing the adjustment revenues by 0.89 (which is equivalent to adding about 12.36% to fuel and purchased-power costs).

PREPA proposes to modify three aspects of the cost-recovery mechanisms:

1. Move the recovery of CILT and subsidies from the FCA and PPCA gross-up to separate riders, as required by statue.

2. Recover the projected fuel and purchased-power costs at the time of the rate-case filing through base rates, while recovering any difference between those base cost levels and updated projections through the riders.

3. Reconcile differences between actual and projected costs quarterly rather than monthly, unless a large difference justifies performing the reconciliation sooner.[279]

376. PREPA believes that including some fuel and purchased-power costs in base rates will reduce "the volatility of the FCA and PPCA factors," facilitate "some rate designs which PREPA may wish to implement in the future," and avoid "frivolous litigation".[280] We are not convinced that PREPA's proposal will have these benefits. In absolute (cents-per-

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[277] The content and form of the subsidies rider is discussed separately in Part Three-IV below.

[278] Reconciliation, also called true-up, refers to recovering the difference between actual costs and revenues previously established to collect projected costs.

[279] Schedule J-1 REV at 49-52.

[280] PREPA's Brief on Substantive Issues at 86.

kWh) terms, the volatility of the riders would be the same, whether they include the entire fuel and purchased-power costs or only the deviation from the rate-case filing. In percentage terms, the riders would be more volatile if they reflect only the deviations from the base value. As for rate-design options, Mr. Chernick explains how PREPA can build even very large time-of-use variations into the base rates.[281] Finally, PREPA has not explained how the fuel and purchased-power riders attract frivolous litigation, or why such litigation would be avoided by changing the tariff structure. Moreover, separating the fuel costs into a base portion and a rider portion will make the tariffs and bills more complex and confusing for customers. That is particularly true in the current situation, in which the projection of fuel costs PREPA presented in its original rate application has turned out to be understated, requiring a large FCA from the effective date of the new rates.

377. We approve PREPA's proposed quarterly reconciliation and update of the FCA and PPCA, along with the concept of an accelerated adjustment in the event of a major change in expectations during a quarter. We are concerned that PREPA's definition of a major change as a 10% difference in the estimated quarterly cost of the rider may not be sufficiently protective of PREPA's financial position under some circumstances and may result in unnecessary adjustments in other situations. For example, a 5% increase in fuel prices on top of $100/bbl oil would have a larger effect on PREPA's cash flow than a 10% increase on $30/bbl oil; under PREPA's proposal, the first situation would not trigger an early adjustment, but the second would. Similarly, PREPA's fuel costs may increase due to an outage at one of the co-generators, or vice versa; if forecast fuel costs rise 10% and purchased-power costs fall 10%, the PREPA proposal would require early adjustments in both riders, even though the two effects would be partially offsetting. And if the fuel and purchased-power forecasts both rose 9%, PREPA would be subject to more stress than if purchased-power costs rose 10% and fuel costs fell slightly; again, PREPA's proposal would result in early adjustment in the less stressful case, but not the more stressful one.

378. We therefore will define a combined dollar level, rather than separate percentage levels, to initiate early adjustment in the FCA and PPCA.

Directives

1. ***All fuel and purchased-power costs shall be collected through the riders, zero through base rates.***

2. ***The riders shall be updated quarterly. PREPA shall include an acceleration provision that is triggered upon a finding by the Commission that the combined difference between projected costs and projected revenues for the FCA, PPCA and the energy-efficiency adjustment in the current quarter exceeds $20 million.***

281 Chernick Report at 89-92.

3. PREPA shall correct all erroneous language in the draft riders and submit the revised language to the Commission for approval.

B. CILT

379. PREPA has proposed that the CILT rider, which will collect the costs of providing statutorily mandated amounts of free electricity to municipalities, be applied to all loads other than the fixed blocks of the RFR tariff. The charge for the RFR fixed blocks are specified by Act 22-2016, with any excess to be priced at the rate for the non-subsidized GRS tariff.

Directives

1. The Contribution in Lieu of Taxes (CILT) shall no longer be collected by PREPA via the 0.89 factor that had been in the denominator of its Fuel and Purchased Power Adjustors. Rather, CILT will be collected through a separate rider. The FY2017 CILT amount shall be $51,783,821.[282]

2. Customers in the RFR class shall be exempt from the CILT as applied to the fixed block consumption charge, but shall pay CILT for consumption exceeding the fixed block.

3. PREPA shall correct the erroneous language in the draft rider and submit the revised language to the Commission for approval.

4. Reconciliation of the CILT rider shall occur annually with each budget examination or three-year rate case filing, whichever applies.

C. Energy efficiency

380. As required by the Commission's rule on Filing Requirements[283], PREPA proposed an energy efficiency rider to recover expenses related to the implementation of energy efficiency and demand-side management programs. The rider would create an Energy Efficiency Charge ("EEC") that would recover the costs of energy efficiency programs from all customers on a per kilowatt-hour basis. PREPA proposes that the EEC (in $/kWh) be calculated as the total cost of energy efficiency programs (in $) divided by the total gross retail sales (in kWh).

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[282] *See* Attachment 4, page 2 of 2.

[283] Regulation 8720, New Regulation on Rate Filing Requirements for the Puerto Rico Electric Power Authority's First Rate Case, March 28, 2016, Section 2.12(D).

Directive

The Commission will address the details of this rider when it determines energy efficiency programs, providers and budgets. For now, PREPA shall revise the rider to correct drafting errors and to provide for annual adjustment and reconciliation.

D. General

381. The Commission was disappointed to discover that the language for the riders on energy efficiency, load retention discount and other purposes, prepared by expensive consultants at ratepayer expense, contain multiple errors, resulting from a hasty copying of language from the existing fuel cost rider. PREPA shall fix all these errors in the compliance filing and avoid exposing ratepayers to the costs of such avoidable errors.

IV. Subsidies

382. As just noted, PREPA has traditionally increased the FCA and PPCA by 12.36% (by placing 0.89 in the denominator) to recover certain subsidies. The levels of these expenses and discounts do not vary with fuel and purchased-power costs, so removing them from the fuel and purchased power adjustors and recovering them through a separate rider will better track costs. This change is also required by statute.

383. There remain two other decisions: (1) Which items will be included in the subsidies rider, vs. recovered through base rates? and (2) Will any customer classes be exempted from any of the subsidies?

384. The decisions for the Commission to make are relatively simple: Which items that PREPA calls "subsidies" shall be recovered through the special "subsidies" charge separately stated on customer bills, and which will be recovered through PREPA's base rates? As an aside, the recovery through base rates can occur in two different ways. One way is treat the item as an expense, then either state it separately as a distinct expense or include it in the A&G expense category. The other way is to treat the item as a reduction in revenues (which may be directly associated with the tariff class in which the customers receiving the revenues resides); then the lower level of adjusted revenues will increase the revenue deficiency and hence the required base-rate revenue increase.

385. Specifically, we find that the direct-debit credit is not a subsidy; it is a revenue reduction that PREPA justifies in terms of cost savings. Treating the $129,428 (PREPA Schedule L-2) of the direct-debit credit as a reduction in PREPA's existing revenues rather than a subsidy increases the base revenue deficiency by $129,428.[284] On the other hand,

[284] *See* Attachment 3, page 10.

regarding the $5.8 million Energy Commission Assessment, Article 6.16(c) of Act 57-2014 establishes that PREPA "will obtain the funds for the payments to the Commission from income derived from subsidies within its rate structure." Accordingly, the $5.8 million will be recovered through the subsidy rider.

386. The RFR fixed blocks are exempt from the subsidy charge, as well as from the CILT charge. However, Act 22-2016 requires any consumption in excess of the applicable fixed block of consumption be billed at the applicable rate for non-subsidized GRS customers, which includes the CILT and subsidies charges. PREPA also proposed to exempt LRS and RH3 customers from the subsidy charge, even though those customers currently pay for such charges through the fuel and purchased-power markups. While we are sympathetic to the particular financial conditions of LRS and RH3 customers, we find that PREPA has not properly justified exempting these customers from the subsidy charge, nor has it provided a rational for exempting these two groups of customers, but not other subsidized customer classes, such as, for example, customers on life-preserving equipment.

Directives

1. ***Based on legislative mandates and our interpretation of the term "subsidy," the following discounts and payments will be included in the subsidies charge:***

    Life-Preserving Equipment
    RFR Tariff
    LRS Tariff
    RH3 Tariff
    Residential Fuel Subsidy
    Analog Rate
    General Agricultural Service
    Hotel 11% Discount
    Rural Aqueducts on GRS
    Downtown 10% Subsidy
    Condo Common Areas
    Act 73 Income Tax Credit
    Public Lighting
    Energy Commission Assessment
    Irrigation District Deficit

    The FY2017 Subsidies amount shall be $136,943,067.[285]

    PREPA proposed including four other items in the subsidies charge. The Commission disagrees, as follows:

[285] *See* Attachment 4, page 2 of 2.

2. *The direct debit credit shall be removed from the subsidies line item because it will not be treated as a subsidy*

3. *The non-recovery of certain costs from net-metering customers is not viewed by the Commission as a "subsidy" and therefore will not be recovered through the subsidies charge. It is a reduction in revenue, like the direct debit credit.*

4. *The economic-development rider is not approved at this time. The Commission will discuss it further with participants in the upcoming rate design proceeding.*

5. *As for the load-retention rider, the Commission will address the appropriateness of including any resulting reduction in revenues in the subsidy charge if and when it approves specific applications.*

The following shall also apply:

6. *The only PREPA sales that will be exempt from the subsidy charge are the fixed blocks of the RFR tariff and some portions of the grandfathered net metering customers' consumption, as explain below. RFR customers shall pay the subsidy charge only for their consumption above their fixed-price consumption block.*

7. *The subsidies rider shall be reconciled annually.*

8. *Future negotiations between the Irrigation District and its non-agriculture customers shall involve ICPO to the extent ICPO wishes to participate. This requirement is not intended to exclude others.*[286]

9. *PREPA shall correct all erroneous language in the draft rider and submit the revised language to the Commission for approval.*

Attachment 4 to this Order contains a table which displays the Commission's decisions.

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[286] We require the negotiators to allow the participation of ICPO (if ICPO chooses to participate) because it is illogical to "negotiate" water rates to a level that is below PREPA's costs on the expectation that customers not present in these "negotiations" have to pay for the deficit. We are not giving ICPO a veto over the negotiations. We are saying that the Commission therefore will take seriously any ICPO objection to the outcome of those negotiations. Since ICPO's clients are both consumers of both water and electricity, ICPO will be in a good position to advise the Commission on the appropriateness of the outcome. The Commission has no objection to other customers participating in those negotiations. As PRASA says, all affected parties will be aware of the obligations and prices to be paid for the sale of water.

CEPR 2014

V. Net-Metering for distributed generation

A. Background

387. Distributed generation comprises small generation resources connected to the distribution system.[287] Some of these facilities are free-standing facilities that sell power to the utility, but an increasing number of distributed generators throughout the developed world are located behind customers' meters, *i.e.*, on their premises. In Puerto Rico today, most of these customer-premises facilities are solar photovoltaic systems.

388. Act 114-2007 authorizes certain owners of distributed generation to engage in net-metering. The concept is that the energy produced by the facility reduces the customer's billing determinants (usually monthly metered energy, in kWhs). In many states' version of net-metering, when the facility produces more energy than the customer uses in a month, the excess energy is carried over as a credit against usage in future months. Each excess kWh is valued (*i.e.*, effectively compensated for) at the energy rate in the tariff under which the customer is served. Excess generation over the course of the year is often credited at a lower rate.[288]

389. Under Act 114-2007, net-metering is available to residential systems with capacity up to 25 kW, and non-residential systems with capacity up to one MW (1000 kW). The law allows for customer net excess generation to be carried over as a kWh to the following month, but the credit is limited to a daily maximum of 300 kWh for residential customers and 10 MWh for commercial customers.

390. PREPA proposes to increase the customer charge (which would not be reduced by net metering). We addressed that issue in Part Three-II above, rejecting the $8.00 charge in favor of a customer charge at $4.00. PREPA also proposes to charge net-metering customers for the CILT and Subsidy charges on both the energy provided by PREPA to the customer and the energy provided by the customer's generator to the customer; in other words, on the customer's full consumption.

391. Because the Commission will initiate a separate proceeding to examine rate design and net-metering, given the complexity of this rate case we address here a limited set of issues: treatment of credits, charges and exclusions for net-metering customers. As for all others raised by PREPA and intervenors, the statute does not require their resolution in this specific rate case; nor was there sufficient evidence or time to do so. We will address them in the upcoming rate design proceeding.

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[287] Sometimes, the term includes small units connected to the transmission system close to load.

[288] The details in these arrangements vary among jurisdictions.

392. The remainder of this Part Three applies to renewable net-metering.

B. Credits and charges

393. Customers without generation behind the meter take all their energy from PREPA. The energy delivered to the customer from PREPA is defined as *inflow* in the Restructuring Order. As described in more detail below, we find that each net-metering customer should pay the same energy charges for inflow as other customers in its tariff class.

394. In addition, net-metering customers also provide energy to PREPA, which we termed *outflow* in the Restructuring Order. As described in more detail below, we find each grandfathered net-metering customer should be credited for outflow at the full energy charge applicable to its class, while a non-grandfathered net-metering customer should receive a somewhat lower credit, excluding certain non-by-passable charges.

395. Among the non-by-passable charges is the Transition Charge. The manner in which the Transition Charge is to be collected from all net-metering customers was decided and explained in the Transition Charge proceeding.[289] Those dispositions remain unaltered.

396. Typically, a net-metering customer will experience outflow in some hours of a month, and inflow in other hours. It is our intention that each customer be billed monthly for the sum of the inflow over the metering intervals with net inflow, and be credited for the sum of the outflow over the metering intervals with net outflow.[290]

397. For ***outflow*** from ***non-grandfathered*** net-metering, the credit shall be the sum of the customer's base rate energy charge; the fuel charge; the purchased-power charge; and the subsidies for Hotel Discount, Downtown Commerce, Churches analog, rural aqueducts, GAS, Condominium Common Areas, and irrigation district; and the Act 73 Tax credit. These items are, or are akin, to normal utility costs (which net-metering customers are already allowed to avoid).

398. For ***outflow*** from ***non-grandfathered*** net-metering, the credit shall ***not*** include: CILT, the energy efficiency charge (when created), public lighting subsidy, the Energy Commission assessment, and all of the items denoted as "help to humans" during the technical hearing: life-preserving equipment, LRS Tariff, RH3 tariff, residential fuel subsidy,

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[289] *See* Restructuring Order, Docket No. CEPR-AP-2016-0001, June 21, 2016, at 71-84.

[290] By "metering interval," we mean the time increments over which the meter records usage. Such interval shall not be less than 15 minutes and shall be an hour if that interval is possible with the available metering. We do not intend that PREPA replace meters that are capable of two-way hourly metering, if the primary purpose of such replacement is to reduce the time increment for net metering.

and the fixed public housing rate (RFR tariff). These items are mostly social commitments—things that benefit the public as a whole, including net-metering customers. As Mr. Chernick explained, net-metering customers are actual or potential beneficiaries of energy efficiency programs:

> Energy-efficiency program costs are very different from the costs of traditional utility functions, in that a distributed generation customer can use energy efficiency services regardless of how much energy the customer takes from PREPA. While the power that flows out from the distributed generation customer to the delivery system can reduce PREPA's costs of generation, transmission and distribution, it does not affect the demand for energy efficiency services. Nor is the energy from distributed generation likely to reduce the extent to which a net-metering customer can participate in the energy-efficiency program.[291]

399. For ***outflow*** from ***grandfathered*** net-metering, the credit shall be the sum of: Base Rate, fuel charge, purchased power charge, all items in the Subsidy Rider, CILT, and energy efficiency charge.

400. For ***inflow***, each net-metering customer shall pay the full rate for its class, including the base rates, fuel charge, power purchase charge, CILT charge, full subsidy charge, and the energy efficiency charge.

401. There shall be no retail charge imposed on the energy that a net-metering customer receives from its renewable facility behind its meter (i.e. self-consumption). This result contrasts with the Transition Charge, which as explained in our Transition Charge Resolution, will be billed to each non-grandfathered net-metering customer based on the customer's total electric consumption, whether provided by PREPA or by its own generation.

C. Directives

1. ***PREPA shall charge net metering customers for inflow from PREPA's system at the normal rate for the tariff class.***

2. ***PREPA shall credit non-grandfathered net metering customers for outflow at the sum of the customer's base rate energy charge; the fuel rider; the purchased-power rider; and the portion of the subsidy charge that covers Hotel Discount, Downtown Commerce, Churches analog, rural aqueducts, GAS, Condominium Common Areas, and irrigation district; and the Act 73 Tax credit.***

[291] Chernick Report at 121.

3. *PREPA shall credit grandfathered net metering customers for outflow at the sum of the customer's base rate energy charge; the fuel rider; the purchased-power rider; the energy-efficiency cost adjustment; the CILT rider; and the subsidy rider.*

4. *All credits should be applied on each monthly billing cycle. For the billing cycle closing in June of each year, seventy-five percent (75%) of any excess kWh credit accumulated by the net-metering customer during the previous year and which remains unused, shall be purchased by PREPA based on the applicable outflow credit for each customer. The remaining twenty-five percent (25%) shall be assigned to PREPA to be distributed in accordance with Section 5 of Act 114-2007.*

5. *PREPA shall provide the Commission with a monthly report of net metering applications, and actual connections, by number and capacity, and by tariff class.*

D. Exclusions

402. PREPA proposed to exclude the low-income classes from the net-metering option on the grounds they are already subsidized. This reasoning assumes that the net-metering benefit is technically a subsidy. We know that is the position of PREPA's consultant but the Commission has not reached that conclusion. Nor should anyone else, until we have a well-prepared marginal cost study and have thoroughly evaluated the benefits of renewable energy—an effort that only rudimentarily begun at the Technical Hearing. Moreover, there are already some net-metered LRS customers. Finally, under PREPA's proposal, a GRS customer who had net-metering but then suffered a financial reversal and thus ended up on the LRS tariff would lose his net-metering status. The Commission rejects PREPA's proposal to deny net-metering to low-income classes. Net-metering shall remain open to all customers with renewable generation.

E. Legal analysis regarding net-metering

403. In this section, the Commission provides the legal analysis that determines: (i) the treatment that would apply to grandfathered net metering customers; (ii) the treatment that would apply to non-grandfathered net-metering customers; and (iii) the requirements for determining whether applying a proposed charge to a net-metering customer is just and reasonable. Before making these determinations, we must first understand the original treatment received by net-metering customers under Act 114-2007,[292] and then the amendments to said Act introduced by Act 4-2016.

[292] An Act to order and authorize PREPA to establish a net-metering program, as amended, 22 L.P.R.A. §1011 *et seq.*

1. Original treatment of net-metering under Act 114-2007

404. Section 4 of Act 117-2007 originally forbade PREPA from imposing additional charges on net-metering customers or increasing their monthly consumption charges.[293] Section 5 of Act 114-2007 established that, when a customer's inflow from PREPA was greater than the outflow from its generators, PREPA would charge that customer for the net inflow (i.e., the excess of inflow over outflow). As such, prior to Act 4-2016, net metering customers were subject to PREPA's regular rates, to be applied to their net inflow from PREPA (i.e., the total amount of energy provided by PREPA minus the total amount of energy supplied by the customer to PREPA's system). Under this treatment, net-metering customers paid PREPA's entire rate—which included CILT, subsidies and grants—on their net inflow.[294]

2. Amendments to Act 114-2007 made by Act 4-2016

405. Sections 29 and 30 of Act 4-2016 amended Sections 4 and 5, respectively, of Act 114-2007 to eliminate the prohibition against additional charges originally contained in Section 4 of Act 114-2007. These new sections introduced the test to be used by the Commission in evaluating any additional charge PREPA sought to impose on net-metering customers. Section 29 of Act 4-2016 also amended Section 4 of Act 114-2007 to provide a general exemption from additional charges (commonly referred to as the "grandfathering clause") to any customer who, by the date of approval of Act 4-2016: (i) has "entered into a net metering agreement"; or (ii) "is in the process of evaluating or developing a renewable energy project which shall be interconnected to the system of the Authority." The exemption also applies to a net-metering customer who, after the date of approval of Act 4-2016 but prior to the Commission approving such additional charges, submits a project for interconnection evaluation and complies with certain other requirements stated in the clause. Customers who comply with the aforementioned criteria are deemed to have been grandfathered, and therefore are exempt from payment of additional charges for a period of twenty (20) years from the date of approval of Act 4-2016.

[293] This prohibition had a reasonable purpose: to protect net-metering customers from penalties that could be imposed by PREPA to compensate for reductions in revenues due to reduced sales or to dissuade customers from installing distributed generation systems. We do not interpret it, however, to mean that net-metering customers were entitled to avoid costs reasonably incurred by PREPA in providing services from which net-metering customers benefited in equal proportion to non-net-metering customers.

[294] Prior to the approval of Act 57-2014, PREPA's costs were bundled together under general line items—for residential customers, mainly base rate. Customers also paid a separate fuel charge and power purchase charge. PREPA's new transparent bill (required by Section 6B of Act 83 and approved in Docket No. CEPR-AP-2016-0002) unbundles many of the costs and requires them to be separately stated. This requirement does not, however, mean that each new line item charge identified in the bill consists of a new charge not previously included in PREPA's rates.

406. Section 5 of Act 114-2007, as amended by Section 30 of Act 4-2016, provides that grandfathered net-metering customer shall be subject to the provisions of Section 5 as that section existed prior to its amendment (in essence, that net-metering customers would pay PREPA's rates on their net inflow only). Non-grandfathered net metering customers, on the other hand, must pay PREPA's normal rates on their net inflow, plus any additional charges approved by the Commission.[295]

3. Application of amended Act 114-2007 to grandfathered net-metering customers

407. Windmar, Sunnova and ICSE-PR argue that the grandfathering clause prevents PREPA from billing any charge approved by the Commission under Section 4 of Act 114-2007 to grandfathered net-metering customers.[296] This argument is incorrect, because it exempts certain net-metering customers from paying for the types of costs they currently bear and had historically borne.

408. Both grandfathered net-metering customers and non-grandfathered net-metering customers currently pay PREPA's full rate (including costs such as CILT and subsidies, among others) on their net inflow (the excess of inflow over outflow). If grandfathered net-metering customers currently pay PREPA's full rate on their net inflow, then that is the treatment that the grandfathering clause seeks to continue after the approval of Act 4-2016 and this Order. Interpreting the grandfathering clause to prevent PREPA from collecting from grandfathered net-metering customers these types of charges—charges designed to recover costs embedded in the rates they currently pay (with the only difference being that those costs are now stated separately in PREPA's bills)—would mean granting those customers a different treatment than the one they had historically received under Act 114-2007.

409. The purpose of grandfathering is to maintain the *status quo*, not improve it.[297] The Commission holds, as it previously did in the Restructuring Order,[298] that there is no basis to inferring a legislative intent to exempt grandfathered net-metering customers from

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[295] *See* Section 5(b) of Act 114-2007, as amended by Act 4-2016 ("The Electric Power Authority may bill a customer for the net electricity supplied, as well as the charge to be approved by the Energy Commission in accordance with Section 4 of this Act").

[296] *See* Windmar's Legal Brief at 7; Sunnova's Legal Brief at 7; *See* also ICSE-PR's Legal Brief at 15 ("ICSE adopts and endorses Windmar's Group legal position in question 25th to 33rd").

[297] *See* Restructuring Order, Docket No. CEPR-AP-2016-0001 at 82, ¶ 319 (The legislative intent of grandfathering is "to ensure that those who made investments in reliance on the law as it existed before a statutory change are treated the same after the statutory change.")

[298] *See* Part III.D.3.

all charges, including those charges which have always been included in PREPA's rates and which are now being separately stated in each bill.

4. Application of amended Act 114-2007 to non-grandfathered net-metering customers

410. If grandfathered net-metering customers are responsible for paying charges approved under Section 4 of Act 114-2007 on their net inflow, then the Commission must conclude that non-grandfathered net-metering customers may be responsible for paying those same charges on their inflow (i.e., the total amount of energy supplied by PREPA to the customer without discounting the amount of energy supplied by the customer to PREPA's grid).[299] Another way of stating it would be that charges approved by the Commission under Section 4 of Act 114-2007 are imposed on a non-grandfathered net-metering customer's inflow from PREPA without receiving a credit for such charges based on the customer's outflow.

411. Some intervenors argue that charges approved pursuant to Section 4 of Act 114-2007 may be imposed only on the net inflow of non-grandfathered net-metering customers.[300] We reject this interpretation as inconsistent with the legislative intent in amending Section 4 of Act 114-2007. In evaluating the applicability of the Transition Charge to non-grandfathered net-metering customers, we stated that "Act 114-2007 nowhere addresses, let alone authorizes, the unfair and destabilizing effect of allowing some customers to shift their costs to others.[301]

412. Accordingly, the Commission holds that charges approved under Section 4 of Act 114-2007 may be imposed on a non-grandfathered net-metering customer's inflow from PREPA, without receiving a credit for such charges on their outflow.

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[299] A similar result would be reached if the Commission interpreted the phrase "additional charges" to mean charges which may be imposed on the inflow, as opposed to current charges which are imposed on the net inflow. An additional charge cannot be a charge to which a customer has always been responsible for paying. If the charge were applied to the *total* inflow (without receiving a credit for that charge based on the outflow), then the charge *would be* an "additional charge" with respect to the portion of the customer's consumption not previously used to determine a customer's bill.

[300] *See* Windmar's Legal Brief at 7 and Sunnova's Legal Brief at 7.

[301] Restructuring Order at 76, ¶ 297. ACONER's legal brief recognizes the validity of the Commission's determination and that other intervenors agreed with such an interpretation during the Technical Hearing. *See* ACONER's Legal Brief at 5 ("Grandfathered" customers will pay the special charges for the net energy kWh consumed, while the "non-grandfathered" customers will pay on the total energy kWh consumption"). *See* also Technical Hearing Recording, at 3:43.

5. Requirements for evaluating a proposed charge on non-grandfathered customers under Section 4 of Act 114-2007

413. Having determined that PREPA may impose charges on the inflow of non-grandfathered net-metering customers, we must apply to the proposed charges the four standards stated in Section 4 of Act 114-2007. Specifically, the Commission must determine whether a particular charge (1) is "just"; (2) is related to the grid services received by net-metering customers; (3) is "excessive"; and (4) creates an obstacle to the development of renewable energy projects.

a. What is "just"?

414. The first criterion is whether the proposed charge is just. To determine how to apply this criterion, the Commission must first determine what is "just". Sunnova argues that there is no fixed result for "just and reasonable rates", but rather that it refers to a "zone of reasonableness" and that its purpose is "to protect consumers from unreasonable costs and prevent utilities from raising prices at will."[302] Other intervenors argue that the term "just" must be defined in the limited scope of Act 114-2007 and its applicability to net-metering customers. That is, that a decision to approve or not approve a charge on the inflow (without receiving a credit for that charge based on the outflow) of non-grandfathered net-metering customers need not result in just and reasonable rates for all other customers, if the result is "just" in the limited scope of net-metering customers.[303]

415. But the term "just" must be defined in the broader context of Act 57-2014. Said Act requires electric service rates to be "just and reasonable" for all customers. The evaluation of the applicability of a charge under Section 4 of Act 114-2007 is made within the context of a rate review procedure under Act 57-2014 and not within a separate procedure under Act 114-2007. As such, the term "just" applies to all customers, not only to net-metering customers.

416. We reached a similar conclusion in our previous decision in the Restructuring Order. On that occasion, we stated that "justness to net-metering customers does not require making non-net-metering customers pay more so that net-metering customers can pay less."[304] We further stated that "the term 'just' applies to all customers, not only net-metering customers" and that "to apply the term 'just' only to the net-metering customers would mean that the other customers are subject to some standards other than 'just', a result contrary to the tenets of Act 57-2014."[305]

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[302] *See* Sunnova's Legal Brief at 3.

[303] *See* Windmar's Legal Brief at 10.

[304] Restructuring Order at 75, ¶ 292.

[305] *Id. at* 75, ¶ 293.

417. The Commission cannot ignore the strong public policy in favor of the development of renewable energy generation, specifically distributed generation, and has taken affirmative steps in other proceedings, such as the IRP Order, to promote integration of renewable energy. However, the existence of said public policy does not override the statutory requirement imposed on the Commission that rates be just and reasonable for all customers. A charge which unduly shifts the burden from one customers to another, absent express legislative intent, such as in the case of a grandfathering clause, cannot result in "just and reasonable" rates.

b. Costs related to grid services received by net-metering customers

418. The Commission must determine whether a charge is related to the grid services received by net-metering customers. We interpret this phrase to mean that net-metering customers should pay for the services they receive.

419. Act 114-2007 does not create a separate class of customers who are responsible only for a special, limited and differentiable portion of PREPA's costs. The difference between a regular customer and a net-metering customer is that net-metering customers are able to reduce their exposure to PREPA's costs by self-generating a portion of the energy they consume, and also to receive a credit for the energy they export to PREPA's grid. Neither Act 114-2007 nor the general public policy behind net-metering programs grants such customers the right to avoid costs merely by being net-metering customers.

420. If, for example, a net-metering customer decided to switch off her distributed generation system during any given period of time, that customer would be responsible for the entire costs incurred by PREPA (and paid for by non-net-metering customers), not just a portion of the costs assigned to net-metering customers. Charges which are borne by all of PREPA's customers, regardless of whether they are net-metering customers or not, should be paid for in equal proportion by all customers.

421. A coherent net-metering policy recognizes the benefits of net-metering and allows a customer to reduce its responsibility for costs directly associated with his or her consumption. PREPA's obligation to provide certain services, such as public lighting, will continue regardless of the number of net-metering customers. A customer's decision to net-meter does not reduce the benefits he or she receives from such services. Therefore, it would not be reasonable for non-grandfathered net-metering customers to avoid responsibility for costs which benefit them in equal proportion to non-net-metering customers, simply because they have a net-metering agreement.

c. What is "excessive"?

422. The third criterion the Commission must consider is whether a charge is excessive. We have previously defined the term as something that is beyond usual, proper, necessary, or normal.[306] We have previously stated that "a charge is not 'excessive' if it does no more than recover costs legitimately applied to a customer."[307] In other words, the Commission must determine whether a proposed charge (or the total amount thereof) would result in the customer paying beyond what is necessary to cover the costs incurred by PREPA in servicing that customer. A charge which recovers the proper share of costs from net-metering customers cannot be considered excessive, merely because it is inconvenient.

d. Obstacle to the development of renewable energy projects

423. The Commission addressed the meaning of "obstacle" in our Restructuring Order, at ¶¶ 295 and 296:

> An "obstacle" is "something that impedes progress or achievement." One must understand the term "obstacle" in context. An obstacle is a change to what is normal—a barrier that impedes normal progress. It is a change to the status quo that makes progress more difficult than before. The Transition Charge reduces legacy costs. Requiring the customer to continue to bear those reduced costs is not an obstacle. The term "obstacle" cannot logically refer to the normal costs of interacting with society. That is all that the Transition Charge is: a means of recovering from all customers those costs legitimately and equitably allocated to all customers.
>
> If the Commission were imposing on net-metering a new, unjustified cost, that would be an obstacle. The Transition Charge is not a new cost; it is a mechanism for reducing existing costs for which all customers, including net-metering customers, should be responsible. A charge that is the same for all customers cannot logically create an obstacle for net-metering customers. It takes nothing away from the good cause of renewable energy to reject this reasoning. (Citations omitted.)

424. This reasoning applies equally here. While the Transition Charge converted existing legacy cost into lower costs, the underlying costs at issue in that proceeding share an essential feature with the costs at issue in this proceeding: they are costs that are the responsibility of all customers. And so we conclude again: "A charge that is the same for all customers cannot logically create an obstacle for net-metering customers."

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[306] Restructuring Order at 76, ¶ 294.

[307] *Id.*

425. ACONER argued that any charge which increases the amount of time required for a customer to receive a return on her investment is an obstacle.[308] Windmar argued that if a charge reduces the pace at which renewable energy is being integrated into PREPA's grid, then that charge would be an obstacle under Section 4 of Act 114-2007.[309]

426. The problem with these arguments is that, taken literally, they would treat *any* charge as an obstacle because any charge could decrease profitability or slow the pace of investment. Accepting these arguments would require us to eliminate all charges on net-metering—a result inconsistent with the legislative intent that we evaluate each of the four criteria separately.[310]

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308 *See* ACONER's Legal Brief at 8.

309 *See generally* Technical Hearing Panel I Part 2 Recording, 3:26:00.

310 As part of the Directives listed in Part Three-V.C, the Commission is directing PREPA to provide monthly reports of net-metering applications and actual connections, which the Commission will use to, along with stakeholder participation, develop reliable and empirical metrics to asses and evaluate the impact of proposed charges on net-metering customers.

PART FOUR:
Procedures for Establishing Revenue Requirements and Rates After FY2017

I. The goals: Disciplined spending, improved performance

427. Procedures for establishing revenue requirements and rates must serve multiple goals, including efficient performance by the utility; timely, predictable recovery of reasonable utility costs; transparency, to enable the rigorous oversight by the regulatory commission and consumer representatives; elimination of waste; and promotion of innovation.

428. If PREPA were an investor-owned utility, the Commission could induce efficient performance by making the utility shareholders absorb the costs of poor performance. But PREPA has no private shareholders to penalize if costs are excessive or performance suboptimal. Once PREPA incurs costs imprudently, the dollars are gone and the regulatory options diminish. If those imprudent costs are not paid for with dollars recovered from ratepayers, PREPA would have to divert funds from other purposes needed to serve ratepayers. PREPA and its ratepayers are a closed system.

429. The challenge, therefore, is to design procedures for financial discipline that, rather than blocking recovery of imprudent costs already incurred, instead prevent imprudent costs from being incurred. This Part Four examines options and establishes solutions. Part Four-II describes PREPA's proposed rate mechanism. Part Four-III presents the procedures we adopt for examining PREPA's budgets and setting its rates. Part Four-IV contains directives to PREPA.

II. PREPA's Proposed Rate Mechanism

430. PREPA proposed something called a Formula Rate Mechanism ("FRM"). As Commission consultant Woolf explained, the primary difference between FRM and traditional ratemaking is how each treats previously incurred costs. As explained in Part Two, a revenue requirement is based on projections of costs and sales. Under traditional ratemaking mechanisms, when results vary from projections the utility either under-collects (if actual costs exceed projections or actual sales fall below projections) or over-collects (if actual costs are less than projections or actual sales are more than projections). The typical FRM (including PREPA's proposed FRM) does things differently. At year end there is a "reconciliation" (also known as a "true-up"). If revenues are insufficient to cover actual costs, customers make up the difference. If revenues exceed actual costs, customers get a refund. If a utility tends to overspend its budgets, FRM shifts the financial burden to the customers.

431. PREPA's proposal, offered through its witness Dr. Hemphill, has six main elements:

432. ***Three-year rate case:*** A general rate case would occur every three years. As we have done in the present case, the Commission would (a) establish PREPA's revenue requirement based on then-current information, (b) allocate revenue responsibility based on a current cost-of-service study, and (c) design rates according to the Commission's then-current rate design goals.

433. ***Interim rate cases:*** In the years between the three-year rate cases, PREPA proposes to have annual proceedings to update the rates for the next year, to reflect new projections of costs and sales. In these interim cases, no changes to the revenue allocation or rate design would occur.

434. ***Annual reconciliation:*** In each rate case (whether three-year or interim), the Commission would reconcile the prior year's actual results to its projections, by refunding to ratepayers any over-collections and charging them for under-collections.

435. ***Use of budgets:*** PREPA proposes to use budget forecasts to set revenue requirements, in both the three-year and the interim rate cases. The budget forecasts would be divided by the sales forecasts to determine rates for the forthcoming year. (Dr. Hemphill did not address the fact that the timing of PREPA's budgeting does not synchronize with the timing of his proposed rate proceedings—a problem we solve in Part III below.)

436. ***Other inputs to rate cases:*** The information and findings from the most recent IRP proceeding will inform the capital expenditure forecasts in each three-year rate case and interim rate case.

437. ***Adjudicated proceeding:*** Each three-year rate case and interim rate case would involve an adjudicated proceeding.

Dr. Hemphill asserts that his six steps allow the Commission to protect customers from excess costs, because the Commission can "track PREPA's progress in meeting the goals set in each annual business plan."[311] We are not convinced. His proposal is little more than a copy-paste of mainland U.S. investor-owned utility practices into Puerto Rico's uniquely difficult context. Without the major amendments we introduce next, his proposal is more likely to burden customers with PREPA's imprudent costs rather than to prevent PREPA from incurring imprudent costs.

[311] Hemphill Additional Supplemental Testimony at 2, ll. 26-32.

III. Disciplining PREPA's spending: Four integrated procedures

438. Having considered the contributions of Dr. Hemphill, Mr. Woolf, and various intervenors, the Commission will adopt three distinct procedures, each designed to impose discipline on PREPA's spending. Those procedures are: (a) annual budget examinations starting with FY2019, (b) reconciliation procedures for each year's rates, and (c) a unique procedure for FY2018. After describing these procedures, we reference the upcoming performance proceeding. Over time, these four efforts will make PREPA's service worth the money customers pay.

A. The annual budget examinations starting with FY2019

439. To ensure that PREPA's rates do not exceed its reasonable costs, the Commission will review PREPA's budgets and spending annually, using two different procedures.

440. One procedure will be the "***three-year rate case.***" In this proceeding, the Commission will review PREPA's cost-reduction efforts, the physical condition of its system and its prior and prospective budgets for each major department. With that information, the Commission may establish a new revenue requirement, a new cost of service, a new revenue allocation and a new rate design. Based on those components, the Commission will establish prospective rates that reflect all feasible cost reduction efforts and thus recover, but do not exceed, the reasonable costs PREPA must incur to serve its customers reliably.

441. The other procedure will be a series of "***one-year budget examinations***" that occur between each three-year rate case. In these proceedings, the Commission will examine PREPA's proposed departmental budgets for the coming fiscal year, compare them to the prior year's budgets, then use that information to establish a just and reasonable revenue requirement for the fiscal year beginning on the upcoming July 1. The purpose of this procedure will be to update the prior year's revenue requirement. This updated revenue requirement will reflect (a) all feasible cost reductions that have been implemented in the prior year, along with those cost reductions that must be implemented in the next year; and (b) any known and measurable changes that we expect to occur in the upcoming fiscal year. As for revenue allocation and rate design, while time constraints will usually preclude changes in the one-year budget examinations, the Commission will adopt Mr. Woolf's recommendation to preserve its powers to make such changes prior to the next three-year rate case.

442. In each of these two types of procedures—the three-year rate case and the one-year budget examinations—changes to the rates will be prospective only. Contrary to PREPA's proposal made through Dr. Hemphill, PREPA **shall have no expectation of readily spending more than its approved revenue requirement, then simply charging ratepayers for the excess.** Nor will we repeat—ever again—the experience of this FY2017 rate proceeding, in which PREPA's consultants offered a revenue requirement having no

visible connection to actual department budgets.[312] Rather, the Commission will review budgets in advance, adjust them to eliminate any waste and to require all feasible cost-savings opportunities, then set revenue requirements consistent with those modified budgets. PREPA's spending must adhere to those budgets.

443. Only in extraordinary situations, where PREPA proves it had no control of a cost increase (such proof to include testimony from those individuals responsible for the areas that experienced the cost increase), will the Commission permit after-the-fact recovery of costs not pre-approved by the Commission. In those instances, where PREPA does not provide proof or did have control of the over-runs, the Commission will decide the appropriate treatment based on the facts. This approach satisfies the needs of bondholders and of customers by providing discipline over PREPA's budgets and spending.

444. Of course, this approach of matching revenue requirements to budgets can work only if the budgets are reasonable, realistic and accurate. Budgets establish contexts. They prevent arbitrary decisions undisciplined by planning and priority-setting. PREPA therefore must prepare, in advance of each proceeding (whether three-year or one-year), a set of departmental budgets applicable to the upcoming fiscal year for which a new revenue requirement is sought. This set of departmental budgets, when totaled, shall be consistent with the proposed revenue requirement (recognizing that some costs, such as fuel, purchased power and CILT, will be reconciled as required by statute).

B. The reconciliation procedure and its effects on rate design

1. The procedure

445. After a fiscal year ends, some type of after-the-fact-reconciliation will be necessary because actual events will deviate from projections. Dr. Hemphill proposed to reconcile, for the immediately preceding fiscal year, the costs actually incurred and revenues actually received in that year with the costs and sales assumed by the Commission in establishing the revenue requirement for that year. But as just explained, the Commission will have capped spending at the budgeted levels. Therefore, the annual reconciliations will focus mostly on how actual sales varied from predictions, because those variances will have caused actual revenues to depart from projected revenues. We will make these reconciliation decisions within the one-year or three-year proceeding that immediately follows the year requiring reconciliation. We will call the procedure leading to the reconciliation decision the "reconciliation procedure."

446. We then have to put the reconciliation into effect. Putting the reconciliation into effect means modifying customer rates to correct any difference between the revenues PREPA actually received and the revenues PREPA was authorized to receive. We will put the reconciliation into effect beginning on July 1st of the new fiscal year following the year in which the calculation for the reconciliation was performed. Thus when FY2017 ends on June

[312] As we explained throughout Part Two.

30, 2017, the calculations necessary to reconcile the FY2017 events will be performed sometime during FY2018, say by March 2018. Those reconciliation calculations will then go into effect starting in July 2018, *i.e.*, the beginning of FY2019.

447. We reiterate: PREPA must have budgets, and it must live with those budgets. Any expectation PREPA has that it can readily spend above the revenue requirement in one year, then charge ratepayers for the difference in a later year, is emphatically rejected. The objective of all these proceedings is to cause PREPA to make realistic budgets, and then live within those budgets. Without this discipline, PREPA's budget overruns become its customers' budget burdens.

448. For our purpose to be achieved, the rate-setting procedure and the budget procedure must be synchronized. At present they are not. PREPA's witnesses testified that the current budgeting process aims to obtaining Board approval by the June preceding a new fiscal year. Budgets emerge from the departments and get approved by the Executive Director between March and April of the fiscal year prior to the one in which the budget will go into effect. To set revenue requirements in the preceding October, as Dr. Hemphill proposed, is to set revenue requirements without a budget. To set revenue requirements in the succeeding October would be setting them after the budget already has been approved and gone into effect—too late to prevent imprudent costs. By failing to synchronize budgets and revenue requirements, Dr. Hemphill's proposal fails in its putative purpose: to empower the Commission to discipline PREPA's spending.

449. Either the PREPA's budgeting process must occur earlier, or the Commission's revenue requirement procedure must occur later. Either way, e**ach proceeding must begin with a budget.** Rather than determine the specific dates in this Order, we will hold in the next few weeks a technical conference to develop with PREPA a procedure that achieves the necessary synchronization. That technical conference can be used to determine all of the dates and schedules about budgeting and reconciling, including the special reconciliation for FY2017 and the budgeting for FY2018 (as discussed in the next subsection).

450. To prevent any misunderstanding: The Commission is committed to creating a rate-setting process that provides PREPA the revenues it needs to operate efficiently and pay its bondholders timely. But the Commission is equally committed to fixing a situation in which budgets are disconnected from revenue requirements. PREPA's sponsorship of Dr. Hemphill's testimony did not help solve the problem. This Order does.[313]

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[313] Among Dr. Hemphill's FRM examples were ones used in Illinois and at the Federal Energy Regulatory Commission. These examples are not useful to the Commission. The Illinois statute applies to investor-owned utilities (which PREPA is not), and includes a penalty against their profits (which PREPA does not have). See Section 16-108.5(f-5) of the Illinois statute. The FERC method, like that of Illinois, applies to investor-owned utilities, not publicly-owned utilities. In at least one situation it has been criticized for limiting customers' opportunities to question the prudence of costs. *See* Midwest Independent Transmission System Operator, et al., "Order on the Investigation of Formula Rate Protocols," Docket No. EL12-35-000, 143 FERC ¶ 61,149 (May 16, 2013).

2. The effects on rate design

451. Dr. Hemphill recommends that any reconciliation be implemented across-the-board through equal percentage adjustment in rates. Thus, each 1% decrease in the revenue requirement would cause a 1% decrease in all base rate charges (volumetric and non-volumetric).[314] Mr. Woolf disagreed. He recommended that customer charges and demand charges remain unchanged; reconciliations should be applied to only the volumetric energy charges.

452. We agree with Mr. Woolf. As his report explained, customer charges, when properly designed, include only costs that vary with the number of customers. Such costs typically include metering, billing and service drops. These costs do not change with the factors that usually affect reconciliations; specifically, changes in revenue requirements or in sales. The same reasoning applies to demand charges, which Mr. Woolf explained reflect the capacity costs of serving customers during peak periods. Like customer-specific costs, these capacity costs do not typically change due to changes in revenue requirements or sales.

453. To apply the reconciliation to fixed charges and demand charges, absent information demonstrating a change in those costs associated with the change in revenue requirements, would change the existing rate design rather than preserve it. While we will leave open an opportunity for PREPA to argue otherwise, the foregoing reasoning supports a rebuttable presumption against such argument. Only in rare situations would we expect the presumption to be rebutted.

C. The unique solution for FY2018

454. Assuming, hypothetically, that our new procedures began in early fall 2017, they would solve the problem for the fiscal year beginning July 1, 2018, *i.e.*, FY2019. We still need to address FY2018, which starts on July 1, 2017. For several reasons, FY2018 requires unique treatment. As of today, January 11, 2017, we do not know enough about FY2018 costs to determine the FY2018 revenue requirement, because our evidentiary hearing focused on FY2017.[315] In particular, we do not yet have a resolution of the bondholder negotiations—which will affect debt service costs and the debt service coverage ratio. We also have not made a final decision on AOGP. Those two matters alone could account for several hundred million dollars. Moreover, as already indicated, an October 2017 "one-year

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[314] Hemphill Supplemental Direct Testimony at 6, ll. 109-112.

[315] Indeed, ¶ 74 of the Application initiating the current proceeding describes PREPA's revenue requirements panel (Pambush-Stathos-Porter) as presenting testimony that "addresses Fiscal Year 2014 (test year) costs and adjustments for known and measurable changes through FY2017.

budget examination" decision would be focusing on FY2019, not FY2018. Indeed, in Oct. 2017, FY2018 will already be three months old.

455. The logical solution—consistent with the above-stated principle that PREPA must live with its budgets rather than expect after-the-fact increases—is that any amendment to the approved FY2017 revenue requirement necessary to reflect FY2018 events shall be addressed in October 2017. At that point there will still be nine months remaining in FY2018. PREPA will have produced a FY2018 budget. In the October 2017 proceeding, therefore, the Commission will review that budget, require adjustments to reflect all prior and prospective cost savings, and establish an adjusted revenue requirement (and associated spending caps) for the remainder of FY2018. Any PREPA request beyond those approved in the October 2017 proceeding must be accompanied by clear showings of savings PREPA has produced through its internal restructuring efforts.

456. We emphasize that this October 2017 procedure to establish a revenue requirement for what remains of FY2018 is a one-time procedure necessary to smooth the transition toward the future of one-year budget examinations and three-year rate proceedings.

457. Furthermore, this one-time October 2017 proceeding would not be combined with a proceeding to determine the FY2019 revenue requirement. As emphasized above, we will not begin a proceeding on the FY2019 revenue requirement until we have from PREPA FY2019 departmental budgets. We will host a technical conference soon to determine a feasible schedule for that FY2019 proceeding, including dates for submission, interventions and evidentiary hearings.

D. The upcoming performance proceeding

458. On November 15, 2016, the Commission issued a Notice of Investigation to identify the needs and opportunities for improving PREPA's performance.[316] The investigation will include two tracks.

459. One track will include one or more independent audits of PREPA's performance. Another track will include a rulemaking process under which the Commission will prepare proposed rules to guide the Commission future oversight of PREPA's performance. Areas to cover could include PREPA's internal organization, executive and employee compensation, budgeting and spending, outsourcing of services where PREPA routinely under-performs, board governance, resource planning, operations, resource acquisition, visibility and transparency, and use of external experts.

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[316] Puerto Rico Energy Commission, *Notice of Investigation to Identify Opportunities to Improve Performance of the Puerto Rico Electric Power Authority*, Case No: CEPR-IN-2016-0002, November 15, 2016.

460. The Commission will assess these options, all described in the Smith-Dady report at Part VI: monthly surveillance reporting, performance auditing of major capital projects, and appointment of an independent management auditor for major capital projects.

461. A key tool for performance improvement is exposure. In the directives below including requiring PREPA to submit reports on cost overruns. The Commission will place such reports on its website and require PREPA to do so. The Commission will also transmit the report to entities with an interest in PREPA's operations and costs, including PREPA's Board, the Legislature, the Governor, the PROMESA Oversight Board, and, of course, PREPA's bondholders. These reports will serve three purposes. First, they will induce PREPA's executives, managers and employees to prevent unreasonable costs. Second, they will provide PREPA, the Commission and others with information, insights and recommendations. Third, they will enable public officials and investors to make informed decisions about PREPA and its future.

IV. Directives

A. PREPA shall improve its bookkeeping, record keeping, and auditing practices so that PREPA management and the Commission have meaningful, timely, and reliable cost information.

B. PREPA shall submit an annual report comparing historical budget forecasts to actual expenditures, along with lessons learned for future forecasting purposes.

C. PREPA shall use the most recent, Commission-approved IRP as the basis for the budget forecast.

D. For any major new capital projects (to be defined by the Commission) included in a budget forecast, PREPA shall provide a third-party based estimate.

E. For each cost-overrun deemed unreasonable by the Commission, PREPA shall provide an analysis containing at least the following elements:

1. ***A summary of the process used by PREPA to forecast the budgets that were exceeded.***

2. ***A summary of the actions PREPA took to contain expenditures within forecasted budgets.***

3. ***A description of actions that PREPA will take to avoid budget overruns in the future.***

4. ***A description of the departments within PREPA that are responsible for the budget forecasts and the operational and capital expenditures.***

5. ***The names and positions of the PREPA executives and department heads that are responsible for the budget forecasts and the operational and capital expenditures***

CEPA
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PART FIVE:
The Corporate Structure of PREPA

I. Description of PREPA Holdings, LLC

462. PREPA's enabling legislation authorizes it to create subsidiary corporations directly related to the "maximization of the Authority's electrical infrastructure." Specifically, PREPA may

> create, in Puerto Rico or abroad, companies, entities, or subsidiary corporations, for profit or nonprofit, affiliated or associated, for purposes, among others, of developing, financing, building and operating industrial projects and other infrastructure directly related to the maximization of the Authority's electrical infrastructure, and acquiring, having and disposing of value and participation, contracts, bonds or other interests in other companies, entities or corporations, and exercising each and every power and right that such interest allows, provided that, in the Board's judgment, such act be necessary, appropriate or convenient to reach the Authority's purposes or to exercise its powers, and to sell, lease, grant or in any other way convey any property of such Authority or to delegate or transfer any of its rights, powers, functions or duties, to any of said companies, entities or corporations that are subject to its total or partial control, except the right to begin expropriation procedures. The above shall take place without detriment to the functions that other public corporations or government agencies of the Commonwealth of Puerto Rico currently have.[317]

463. Under this authority, PREPA formed PREPA Holdings in 2009 as a wholly-owned subsidiary. PREPA Holdings is a limited liability company which in turn owns three other subsidiaries. PREPA has described these entities as follows:

1. PREPA Networks, LLC invests, develops, finances, constructs and operates new generation fiber optics for PREPA within and outside Puerto Rico. The Company provides wholesale telecommunications services and markets the excess communications capacity of PREPA's fiber optic cable system.

2. Consolidated Telecom of Puerto Rico, LLC invests, develops, finances, constructs and operates new generation fiber optics for PREPA. This company also provides enterprise (retail) telecommunications services.

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[317] 22 L.P.R.A. sec. 196 (v).

3. InterAmerican Energy Sources, LLC invests, develops, finances, constructs and operates renewable and non-renewable energy power projects and other electric utility services and infrastructure, such as but not limited to the generation, purchase, sale and distribution of photovoltaic solar-thermal, wind, waste-to-energy, oil, gas and petroleum distillates within and outside the Commonwealth of Puerto Rico in connection with the operation of PREPA.

464. PREPA Holdings has no operations of its own. It is the sole owner of PREPA Networks and InterAmerican Energy Sources. Consolidated Telecom of Puerto Rico is a subsidiary of PREPA Networks. PREPA Networks has a 51% membership (ownership) interest in Consolidated Telecom; PREPA Holdings has the remaining 49% membership interest.[318] PREPA Networks has 50 employees; its subsidiary, Consolidated Telecom, has 8 employees. InterAmerican Energy Sources has no employees and is not currently operating.[319] The three subsidiaries of PREPA Holdings are housed outside of PREPA (*i.e.*, not in buildings owned or occupied by PREPA).

465. Relative to PREPA, PREPA Holdings is very small. Its consolidated assets total approximately $53 million, only 0.5% of the total asset value of its parent. The three subsidiaries in 2014 had a positive net position of about $20 million.[320]

II. Benefits and risks of the current corporate structure

466. When a monopoly utility has affiliates, concerns arise in the following categories: effects on the utility's finances, effects on the utility's customers, and effects on the utility's competitors.

A. Finances

467. According to Commission Consultant Hill, a limited liability company structure implies that the debts undertaken by the subsidiary are non-recourse to the parent companies (PREPA Holdings and, ultimately, PREPA). Under that structure, debt issued by each PREPA Holdings subsidiary should be secured by that subsidiary's assets and income stream, not by the assets or income stream of the parent.

468. Because of the subsidiaries' small size relative to PREPA, their effects (positive or negative) on PREPA's financial condition will be infinitesimal—provided the subsidiaries remain at their present size. If, however, any one of those companies undertakes a

[318] SGH-02-08 (g)(iii) at 56. Commission's Fourth Request of Information (July 15, 2016).

[319] SGH-01-38 (f) at 42. Commission's Second Request of Information (June 23, 2016).

[320] PREPA's 2014 Annual Report at 36 (PREPA Ex. I-2).

substantial expansion or a large construction project and requires a significant capital infusion, the risk of financial harm to PREPA rises. Mr. Hill asserted that it was reasonable to assume that in the event of any significant debt issuance by a subsidiary of PREPA Holdings and a subsequent business failure of that subsidiary, the lenders would seek recourse from PREPA regardless of their non-recourse position.

469. On the benefit side, Mr. Ramos, PREPA's Chief Financial Officer ("CFO") asserted that when PREPA contracts with the subsidiaries, it benefits from their PREPA experience. He added that because those vendors are wholly-owned by PREPA, their earnings stay within the PREPA family.[321]

B. Customers and competitors

470. Whenever a monopoly company affiliates with a competitive company there is a risk of cross-subsidies. In the context of an inter-affiliate transaction, a cross-subsidy occurs when the price paid by the affiliate for the utility's service is below market price, or the price paid by the utility for the affiliate's service is higher than the utility's own cost or the market price. Cross-subsidies can also arise from resource transfers, such as if assets, personnel or technology is developed by the utility (or affiliate) and transferred to the affiliate (or utility) at less (or more) than market value (or cost, whichever is the relevant benchmark). Also, in the utility ratemaking process the affiliate's overhead is over-allocated to the utility or the utility's overhead is under-allocated to the affiliate, ratepayers subsidize competitive affiliates—to their own detriment and to the detriment of the utility's unaffiliated competitors.

471. Mr. Hill identified several examples. He said that the prices PREPA Networks was paying PREPA for capacity on PREPA's fiber optic cable might be lower than market prices, at least for urban areas, thus disadvantaging PREPA's customers as well as unaffiliated competitors of PREPA Networks. He also pointed out that PREPA paid PREPA Networks approximately $500,000 for 60 mobile radios (July 2015), without evidence of competitive bidding.

472. PREPA witnesses claimed that pricing in the inter-affiliate transactions was benchmarked against competitive prices. But those prices could have been different had there been transparent, head-to-head competition to provide the services at issue.

473. Mr. Ramos argued that doing business with PREPA Networks benefits PREPA because its affiliate is familiar with PREPA's needs. But that argument ignores the fact that other companies, if given the chance, could develop the same familiarity. It is especially

[321] Response to SGH-03-02 at 16. Commission's Eight Request of Information (August 19, 2016).

concerning that, as we learned at the technical hearing, PREPA has no "code of conduct"—rules for inter-affiliate interactions that prevent consumer harm and unearned competitive advantage. Such codes are standard fare in other jurisdictions.

474. The Commission also learned that InterAmerican intends to develop and finance energy power sources related to solar and other green energy generation methods. Its affiliation with PREPA, the primary energy provider in Puerto Rico, would give it name recognition—a competitive advantage not attributable to InterAmerican's merits. Puerto Rico needs to focus on attracting renewable energy competitors. Allowing entry by an affiliate of a monopoly utility does not help that cause.

C. The underwater transmission cable

475. InterAmerican Energy presented another complication. In 2015 it was planning to develop and own an underwater transmission cable to interconnect the electric power systems on the islands of Puerto Rico and St. Thomas, U.S. Virgin Islands.[322] In its submission to FERC, InterAmerican stated that either InterAmerican or PREPA would provide transmission service over the line and that, initially, power would flow from Puerto Rico to St. Thomas from an interconnection at PREPA's Fajardo Substation.

476. It is odd that in the middle of its financial crisis, PREPA would consider investing in an expensive and risky project, one requiring hundreds of millions of dollars in capital that PREPA itself cannot raise. The venture raises all the classic problems: the risk of angry investors seeking recourse to PREPA if the project fails, the risk of PREPA's customers being charged for the venture's costs while not being compensated for the benefits PREPA provides, and the risk that PREPA's preferred relationship with InterAmerican would deter others from competing for this opportunity. However, as PREPA's witnesses made clear at the technical hearing, this project is going nowhere. Nevertheless, PREPA needs to focus on its customers and leave such ventures to entities that could be in a better position to undertake this type of projects.

III. Open questions

477. Mr. Ramos has asserted that each subsidiary operates independently of the others and of PREPA. This assertion is not consistent with the facts. Each subsidiary has business relationships with PREPA that cannot be described as arms-length because they did not arise from competitive bidding, and are not disciplined by a code of conduct or by any regulatory review. The telecom entities lease fiber capacity from PREPA, PREPA uses their services, and PREPA provides construction services to them. The Executive Director of

[322] The basic facts are in InterAmerican's 2015 filing before the Federal Energy Regulatory Commission (FERC) in Docket No. EL15-24-000. See FERC Order Granting Petition for Declaratory Order (Feb. 15, 2015).

PREPA sits on the Board of some of the subsidiaries. He cannot be indifferent to their performance. Indeed, PREPA Holdings is consolidated with PREPA for financial reporting purposes. Based on these facts, the claim of "independence" is not credible.

478. What is missing is transparency: the Commission's ability to see the details of the operations and cash flows of the subsidiaries, including how those operations and cash flows affect PREPA, its customers and competitors. Mr. Hill explained that his "[r]epeated attempts [...] to obtain basic annual financial information regarding the subsidiaries of PREPA Holdings (income statements, balance sheets, cash flow statements) [...] were unsuccessful."[323] PREPA did supply consolidated financial data for one year and some data regarding charges to PREPA by the PREPA Holdings companies, but it never supplied annual historical financial data for each of the subsidiaries of PREPA Holdings as requested.[324]

479. Mr. Ramos asserted that PREPA has no control of the income statements, cash flow statements, and balance sheets of any of the PREPA Holdings subsidiaries.[325] This statement is not credible. PREPA is the sole shareholder of the company that owns these companies. PREPA has control. It has the power to direct its subsidiaries to take the actions PREPA wants—or not to.

480. Mr. Ramos acknowledged that "[i]t is difficult to quantify the added value PREPA receives from its subsidiaries [...]"[326] Given that fact, we wonder why it is necessary to subject PREPA, its customers and its competitors to the afore-described risks. This rate case, with its focus on a $3.5 billion revenue requirement, is not the ideal place to assess fully the costs and benefits of PREPA Holdings. The upcoming performance investigation is. There the Commission will assess the benefits and detriments to Puerto Rico of having its distressed utility involved in businesses that have little to do with PREPA's service obligations. Until we conduct that analysis, PREPA and its affiliates shall comply with the directives described next.

IV. Directives

A. PREPA shall provide annually, consistent with a schedule to be determined by the Commission, (a) access to all operating and financial records of each

[323] Hill Report at 47.

[324] CEPR-SGH-01-038 at 42. Commission's Second Request of Information (June 23, 2016), CEPR-SGH-02-08 at 56. Commission's Fourth Request of Information (July 15, 2016) and CEPR-SGH-03-01 through 06. Commission's Eight Request of Information (August 19, 2016).

[325] Response to SGH-03-01 at 3. Commission's Eight Request of Information (August 19, 2016).

[326] PREPA Response to CEPR-SGH-03-02 at 16. Commission's Eight Request of Information (August 19, 2016)

of PREPA Holdings' subsidiaries; and (b) a list and description of all inter-affiliate transactions to which PREPA is a party.

B. ***PREPA shall create no new direct or indirect affiliates, nor inject further equity into or loan further money to, any direct or indirect affiliate, without informing the Commission at least 30 days before such action is to be taken. Such request for permission shall include a business plan, and financial and economic analyses demonstrating how the new business will bring benefits to Puerto Rico without causing harm to consumers or competition.***

C. ***PREPA shall propose to the Commission a code of conduct that ensures, to the extent feasible, that affiliate relationships cause PREPA's customers no extra cost and cause PREPA's competitors no unfair disadvantage. Such code of conduct shall reflect the "state of the art" in protecting customers and competitors from harm.***

D. ***Under no circumstances shall PREPA (a) guarantee any debt of the subsidiaries, (b) allow its assets or revenue to become security for any debt incurred by the subsidiaries, or (c) in any way become financially responsible for any commitments undertaken by the subsidiaries.***

E. ***Until further notice, PREPA shall provide no resources or assistance to, or receive resources or assistance from, any affiliate whose business activities include competing to provide renewable energy facilities. PREPA shall disclose all such resources or assistance that have been provided to date.***

Findings of Fact[327]

Part Two – The FY2017 Revenue Requirement

1. The FY2014 data for the test year was "stale" and "unrepresentative" of the costs underlying a FY2017 revenue requirement.

2. The problems with the data were inevitable given the multi-year gap between the FY2014 audited results and the FY2017 rate year.

3. PREPA's consultants used a test year of FY2014, because it was the most recent 12 months for which audited information was available.

4. PREPA's financial condition is not stable.

5. Because PREPA's weak financial condition, lenders are not willing to make long-term loans.

6. The only source of funds for PREPA, for long-term capital expenditures, are today's customers.

7. In each major area of PREPA's budgets dropped from FY2010 to 2016, and especially sharply between FY2014 and FY2015.

8. Non-labor spending on every area, except A&G, has declined by 28% since FY2010.

9. Beginning in FY2014 PREPA has been underspending its already-reduced budgets.

10. PREPA's operational spending has been based not on actual needs but on overall ceilings rooted in political concerns about rate increases.

11. The effects of T&D work force reduction have been significant on transmission and distribution system maintenance. These effects have been exacerbated by a shortage of funds necessary to execute a well-planned preventative maintenance program.

12. Work force reduction has caused the reassignment of multiple construction crews to focus on reactive maintenance instead of preventative maintenance and new construction causing, a steady decline in transmission and distribution system maintenance and performance across key performance indicators including CAIDI since 2014.

[327] The Findings of Fact listed in this section have the purpose of summarizing many of the findings made by the Commission in support if its determinations in this Final Resolution and Order. It is not intended to be a complete or exhaustive list of all the findings made in this Final Resolution and Order.

13. PREPA's spending on Administrative and General operations has been increasing.

14. PREPA's spending last year on miscellaneous A&G related expenses was more than its entire proposed budget for generation expenses in FY2017.

15. Instead of allocating dollars according to the activities and costs of each area, PREPA's consultants simply allocated to each area that percentage of the proposed FY2017 total that matched its fraction of the FY2014 total.

16. PREPA's consultants acknowledged that their method may not relate in any way to PREPA's actual budgeting process.

17. PREPA does in fact have a bottom-up, by-directorate operations expense budget for FY2017, independent of its by-area allocation of operational expenses in the revenue requirement. PREPA did not disclose this budget to the Commission or its consultants prior to the Technical Hearing.

18. The by-area operations expense allocations proposed by PREPA are disconnected from PREPA's actual operations budget.

19. PREPA routinely reallocates funds during the year depending on changing circumstances.

20. PREPA's performance improvement initiatives are in many cases still experimental in nature.

21. PREPA is having difficulty managing its workforce.

22. PREPA is an inefficient bureaucracy with high absenteeism, has an unacceptable safety record, is overly staffed with non-value-added administrative personnel, especially in the executive directorate, and has an oversized executive team.

23. PREPA has a shortage of technical expertise.

24. PREPA has been incurring hundreds of thousands of dollars in fines for environmental non-compliance.

25. PREPA pays for the energy AES produces and the dependable capacity it provides. PREPA also compensates AES for its startup-related costs after any unit shutdown requested by PREPA.

26. PREPA's energy payment to AES has two components: a fuel pass-through, and a charge for variable operations and maintenance costs. The per-kWh energy price is fixed every year, subject to a guarantee from PREPA that the unit will be dispatched at

a capacity factor of at least 50%. The capacity price reflects AES's capitals costs and its fixed operations and maintenance costs.

27. PREPA's contract with EcoEléctrica includes a capacity payment and a base energy charge. PREPA pays charges for unit start-up if PREPA requested the preceding shut-down. The EcoEléctrica contract also requires an "excess energy payment" for energy required above a 76% capacity factor. These factors make it difficult for PREPA to predict its payments to EcoEléctrica.

28. In recent years, PREPA has based its capital budget on a compromise between the system's actual needs and a desire to avoid any rate increase.

29. There has been no base rate increase since 1989.

30. PREPA needs to improve its budgeting process.

31. The information provided by PREPA as part of its responses to requests for information was often insufficient.

32. PREPA could not provide sufficient documentation explaining a project, justifying its expense, how the estimate was generated, or even the project's value to customers.

33. PREPA's largest units are not reliable.

34. PREPA's total anticipated spending at the Aguirre Steam Units, averaging $16/kW from 2017-2019, are in line with "run-rate" capital dollars budgeted for steam coal units at other utilities.

35. PREPA did not provide forced outage records or estimates for the Aguirre Combined Cycle units.

36. The Alstom contract should be treated as operations and maintenance (O&M) expense rather than a capital cost.

37. PREPA's goals in pursuing smart-grid technology are similar to those of other utilities installing smart grid.

38. With regards to using PREPA Network, PREPA should have used competitive bidding to select the best provider.

39. The Irrigation District arrangement is inefficient and illogical.

40. PREPA's contractual obligation to pay the interest and principal due on the legacy debt remains.

41. While the Commission has authority to approve future debt, it has no authority to adjust the outcome of the PREPA-bondholder negotiations.

42. PREPA's forecast for FY2017 was acceptable.

43. PREPA and its bondholders should not eliminate the role of Consulting Engineer.

Part Three – Revenue Allocation and Rate Design

1. Because PREPA does not have a continuing load-research program, it had to develop load shapes through other means.

2. PREPA did not have information with which to determine various customer classes' contribution to system peak load.

3. PREPA used allocators based on estimates of class non-coincident peak load.

4. PREPA did not have non-coincident peak data for each customer class for any recent year, so it combined data on load shapes from as early as FY2009 and as late as FY 2014, depending on the tariff code.

5. PREPA's estimates of class demand allocators do not represent the load characteristics that drive PREPA's costs.

6. PREPA's proposed revenue allocation deviates markedly from its COSS.

7. PREPA's marginal cost study is deficient.

8. The fixed customer charge for the GRS class proposed by PREPA is overstated

9. A $4.00 customer charge is justified by marginal cost considerations.

10. PREPA's marginal cost study had estimates of marginal energy costs that were lower than PREPA's self-reported FY2016 production costs.

11. PREPA's estimates reflected fuel costs much lower than those estimated by Drs. Fisher and Horowitz.

12. PREPA's estimates did not account for the fact, for plants which are operating all month, the costs necessary to raise those plants' production would be lower than normal.

13. PREPA used an average of the hourly marginal costs, rather than a weighted average of hourly prices reflecting the higher marginal costs in higher-load hours.

14. PREPA's fuel discount is overly complicated and needs to be simplified.

15. PREPA currently recovers all of its fuel costs and purchased-power costs through separate but similar Fuel Cost Adjustment (FCA) and Purchased-Power Cost Adjustment (PPCA) cost riders. Most other costs are recovered through base rates.

16. CILT and subsidies are currently recovered through the FCA and PPCA by means of a "gross-up" produced by dividing the adjustment revenues by 0.89 (which is equivalent to adding about 12.36% to fuel and purchased-power costs).

17. The levels of subsidies related expenses and discounts do not vary with fuel and purchased-power costs.

Part Four – Procedures for Establishing Revenue Requirements After FY2017

1. The Commission must design a procedure for financial discipline that, rather than blocking recovery of imprudent costs already incurred, instead prevent imprudent costs from being incurred.

2. PREPA proposed something called a Formula Rate Mechanism (FRM).

3. The primary difference between FRM and traditional ratemaking is how each treats previously incurred costs. If revenues are insufficient to cover actual costs, customer make up the difference. If revenues exceed actual costs, customers get a refund.

4. PREPA's proposal is more likely to burden customers with PREPA's imprudent costs rather than prevent PREPA from incurring imprudent costs.

5. After a fiscal year ends, some type of after-the-fact-reconciliation will be necessary because actual events will deviate from projections.

6. PREPA's rate-setting procedure and its budgeting procedures are not synchronized.

7. The Commission lacks sufficient information to set a revenue requirement for FY2018.

Part Five – The Corporate Structure of PREPA

1. PREPA has no "code of conduct"—rules for inter-affiliate interactions that prevent consumer harm and unearned competitive advantage.

2. Each subsidiary has business relationships with PREPA that cannot be described as arms-length because they did not arise from competitive bidding, and are not disciplined by a code of conduct or by any regulatory review.

3. PREPA Holdings is consolidated with PREPA for financial reporting purposes.

4. The claim of "independence" between PREPA and its subsidiaries is not credible.

5. PREPA is the sole shareholder of the company that owns these subsidiaries. PREPA has control. It has the power to direct its subsidiaries to take the actions PREPA wants—or not to.

* * *

Conclusions of Law[328]

1. Act 57-2014 established procedures and standards for evaluating and establishing electric rates to be charged by PREPA.

2. The Commission is the entity created by Act 57-2014 to regulate and oversee PREPA's operations and performance and review its rates.

3. Act 57-2014 grants the Commission ample discretion in adopting the necessary determinations to ensure a safe and reliable electric service at reasonable prices.

4. Section 6.25(a) requires PREPA's rate to be "just and reasonable and consistent with sound fiscal and operational practices which result in a reliable service at the lowest reasonable cost."

5. The Commission approved Regulation 8720, establishing the information requirements with which PREPA must comply when it submits an application for new rates.

6. Section 6.25(d) of Act 57-2014 grants the Commission discretion to, within 30 days from the date on which a petition for new rates is filed, approve a Provisional Rate.

7. Section 6.25(f) requires the Commission to complete its review of PREPA's proposed rates within 180 days from the date PREPA's request is deemed to be complete.

8. If the Commission fails to make a final determination within said 180 days, the rate proposed by PREPA is deemed approved as a matter of law.

9. Act 57-2014 requires PREPA's rates must: (i) "[be] sufficient to guarantee payment of principal, interest, reserves, and all other requirements of bonds and other financial obligations that have not been defeased as part of the securitization provided in Chapter IV of the Electric Power Authority Revitalization Act, and reasonable costs of providing the services of the Authority; (ii) complies with the terms and provisions of the agreements entered into with or in benefit of buyers or holders of any bonds or other financial obligations of the Authority; (iii) covers the costs of the contribution in lieu of taxes and other contributions and subsidies required to the Authority under special laws; (iv) remains in effect during three (3)- year cycles at least, except for periodic adjustments authorized by the Commission as part of the rate approved, and unless the Commission *motu proprio* decides to conduct a review; (v) takes into

[328] The Conclusion of Law listed in this section have the purpose of summarizing many of the findings made by the Commission in support if its determinations in this Final Resolution and Order. It is not intended to be a complete or exhaustive list of all conclusions reached in this Final Resolution and Order.

consideration the operational and administrative efficiencies and savings provided in the Creditors' Agreement as reasonably."

10. The revenue requirement, and the rates approved to recover such revenue requirement, approved in this Final Resolution and Order complies with the requirements set forth in Act 57-2014.

11. Act 57-2014 does not give the Commission discretion to judge the reasonableness of the CILT and subsidies.

12. PREPA's enabling legislation authorizes it to create subsidiary corporations directly related to the "maximization of the Authority's electrical infrastructure.

13. The Commission has the statutory authority to require PREPA to provide information regarding its subsidiaries.

14. A central principle of just and reasonable ratemaking, economic efficiency and equity is that costs should be borne by those who cause them.

15. A cost-of-service study does not place a constraint on the Commission's discretion in allocating revenue responsibility.

16. Act 57-2014 provides that the FCA and PPCA rides may "only include costs directly related to the purchase of fuel and energy."

17. Act 22-2016 grants certain low-income customers a fixed electric service rate for a specified block of energy consumption.

18. Grandfathered net-metering customers shall pay charges approved under Section 4 of Act 114-2007 on their net inflow (after receiving a credit for their outflow).

19. Non-grandfathered net-metering customer shall pay charges approved under Act 114-2007 based on their total inflow from PREPA.

20. The charges approved in this Final Resolution and Order under Section 4 of Act 114-2007 are just, are designed to recover costs related to grid services received by net-metering customers, are not excessive and do not represent an obstacle to the development of renewable energy projects.

21. Act 50-2013 does not constrain the Commission's discretion is approving rate applicable to the Puerto Rico Aqueduct and Sewer Authority.

22. The Commission is not required, either by Act 57-2014 or by the Restructuring Support Agreement, to approve the Formula Rate Mechanism proposed by PREPA in its filing.

23. Act 57-2014 does not require the Commission to approve a customer-specific mechanism for calculating the amount to be credited or charges to PREPA's customers to reconcile the Provisional Rate with the permanent rates approved.

* * *